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KING'S College LONDON

Digital Humanities

Measuring the Impact of Digital Resources:

The Balanced Value Impact Model

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EXECUTIVE SUMMARY

This document is an output from an Arcadia funded research project. It draws evidence from a wide range of sources to provide a compelling account of the means of measuring the impact of digital resources and using evidence to advocate how change benefits people. The aim is to provide key information and a strong model for the following primary communities of use: the cultural, heritage, academic or creative industries.

For the purposes of this report, the definition of Impact is:

> *The measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.*

The outcome of this cross disciplinary research is a new and targeted model of Impact Assessment for the primary communities of use identified above. *The Balanced Value Impact Model* brings together aspects from disparate Impact Assessment communities into a cohesive and logical process for Impact Assessment.

The Balanced Value Impact Model is intended to aid the thinking and decision making of those wishing to engage in Impact Assessment. It also acts as a guide through the process of Impact Assessment to enable the core values most appropriate to the assessment to be brought to the fore and given a balanced consideration when evaluating outcomes. It presumes that the assessment will be measuring change within an ecosystem for a digital resource.

The Balanced Value Impact Model is applied in five core functional stages:

1. Context
2. Analysis and Design
3. Implementation
4. Outcomes and Results
5. Review and Respond

These activities are carried out through the application of a Logical Framework to record information at each stage and to assist with planning and implementation.

The Balanced Value Impact Model is intended for those wishing to carry out Impact Assessment. It will also be valuable to funding bodies and government agencies as a guidance document when designing effective programmes to develop the digital domain, and for sharing with grantees working on digital projects.

GUIDANCE ON HOW TO USE THIS DOCUMENT

WHO IS THIS DOCUMENT FOR?

This document draws evidence from a wide range of sources and seeks to provide a compelling account of the means of measuring the impact of digital resources and using evidence to advocate how change benefits people. The aim is to provide key information and a strong model for the following primary communities of use:

- Memory institutions and cultural heritage organizations, such as libraries, museums and archives.
- Funding bodies who wish to promote evidence-based impact assessment of activities they support.
- Holders and custodians of special collections.
- Managers, project managers and fundraisers who are seeking to justify further investment in digital resources.
- Academics looking to establish digital projects and digital scholarship collaborations with collection owners.
- Publishing, media and business sectors which may be considering the best means to measure the impact of their digital resources and are looking to collaborate and align with collection owners, with academia or with memory institutions.
- Impact Assessment practitioners considering an Impact Assessment of a digital resource.

WHAT CAN YOU DO WITH THIS DOCUMENT?

This document synthesizes information from the whole Impact Assessment sector and then proposes the Balanced Value Impact Model as a means to effectively carry out an Impact Assessment relating to the benefits of digitization and digital resources in general. It seeks to help the communities identified above to provide a compelling argument for future work. Thus, you will find in this document information on:

- Where the value and impact can be found in digital resources,
- Who are the beneficiaries gaining from the impact and value,
- How to measure change and impact for digital resources,
- What makes for good indicators of change in people's lives,
- How to do an Impact Assessment using the Balanced Value Impact Model, and
- How to present a convincing evidence-based argument for digital resources?

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NAVIGATING THE DOCUMENT

If you want to jump straight to implementing Impact Assessment then go to Chapter 6: The Balanced Value Impact Model. Note that you may need to refer back to Chapter 5 for some context to explain the Model. Appendix D is an indicative guide to relevant methods and techniques that could be used.

Chapters 1 to 5 provide context, an overview of Impact Assessment, explain why impact matters and how to engage with this complex subject area. These sections seek to enhance our understanding of impact,

why the Balanced Value Impact Model is required and how it can support sustainable digital resources. The Bibliography provides an extensive set of references to the state of the art in Impact Assessment.

TERMS AND ACRONYMS USED IN THIS DOCUMENT

The field of Impact Assessment is mature and well established. As such, there are terms that are in regular mainstream use which I reflect within this document. I define the terms I use in this document so that my meaning is explicit and clear.

Impact is defined as: The measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.

Stakeholders are defined as: A person, group, community, or organization who affects or can be affected by the ecosystem of the digital resource to be assessed.

Digital resources are scoped within the following parameters:

- There is a defined resource that is made up of a describable, cohesive set of primary and secondary materials, services, products and activities.
- The resource is accessed primarily through a digital platform (web, mobile, or other means).
- The nature of the content within the resource is digital in nature – either achieved through digitization or as born digital content.
- There is a definable group of users that the resource is intended to reach by digital means.
- The resource does not have to stand alone, it could be part of a wider set of activities, products, or services.

IA = Impact Assessment

BVI Model or **BVIM** = Balanced Value Impact Model

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Arcadia is a grant-making fund established in 2001. Arcadia's key mission is to protect endangered culture and nature. This includes near extinct languages, rare historical archives and museum quality artefacts, and the protection of ecosystems and environments threatened with extinction. Full details of Arcadia's grants are available at the website here: http://www.arcadiafund.org.uk/.

THE PROJECT

The project website with all reports/resources created is available here:
http://www.kdcs.kcl.ac.uk/innovation/impact.html

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- Clifford Harkness, National Museums Northern Ireland
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CHAPTER 1: INTRODUCTION

This document is about Impact and how we can measure it for digital resources. The research results reported here deliver a synthesis of models, methods and techniques for Impact Assessment (IA) to resolve these into a cohesive, achievable model for the IA of digital resources.

To assist and clarify our thinking and research goals I would like to offer my definition of Impact as:

> *The measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.*

In this document I engage with the need for evidence of impact for digital resources in the cultural, heritage, academic or creative industries. It has recently become clear from a number of discussions with funders, museums, libraries and educational organizations, in the UK and elsewhere, that there is a need to measure and elucidate the impact of digital resources and collections more accurately. Recent research into the value and impact of digitized collections (Tanner & Deegan, 2011) has shown that there are clear benefits and value in the activity, but there is also a lack of impact measures to back up the assertions with significant evidence beyond the anecdotal.

Many previous efforts to assess digital resources have either been limited to number-crunching visitor numbers without much segmentation and analysis, or the use of anecdotal or survey evidence to try to find out about value and benefits. We remain in a situation where the creative, cultural and academic sectors are not able to demonstrate from a strong enough evidence-base that they are changing lives or having a positive impact with regard to digital content in the way that other sectors have found it possible to do for their services, activities or products (Finnis et al, 2011) (Selwood, 2010).

Consideration in this document has been given to the vitally important issue of sustainability for those creating and managing digital resources. Problems of obtaining evidence of impact to support sustainability relates in part to one simple aspect of digital resources: they have not existed for a very long time in the main part. Many evaluations of digital resources attempt to measure change over a very short period of time (sometimes even as short as 3 months), and thus have no baseline metrics against which to assess what may have changed. Also, it is difficult to measure impact if the resource or activity has not been supported for very long after the initial development period (and therefore the funding) has ended, and they have not been evaluated or assessed over time. The work and initiatives of the JISC Strategic Content Alliance (www.jisc.ac.uk/contentalliance), Ithaka's sustainability research (Maron et al, 2009) and the Digital Preservation Coalition's (www.dpconline.org) guidance were consulted in the preparation of this research.

The aim of this document is to provide key information and a strong model of IA for the following primary communities of use:

- Memory institutions and cultural heritage organizations, such as libraries, museums and archives.
- Funding bodies who wish to promote evidence-based impact assessment of activities they support.
- Holders and custodians of special collections.
- Managers, project managers and fundraisers who are seeking to justify further investment in digital resources.
- Academics looking to establish digital projects and digital scholarship collaborations with collection owners.

- Publishing, media and business sectors which may be considering the best means to measure the impact of their digital resources and are looking to collaborate and align with collection owners, with academia or with memory institutions.
- IA practitioners considering an IA of a digital resource.

OVERVIEW OF PROJECT METHOD

The project carried out an extensive literature review of IA across sectors such as social, economic, health, environmental, transport, corporate, cultural, heritage, academic and library, museum and archive sectors. Further in-depth exploration of IA techniques and experience from across a range of organisations in many sectors was undertaken in order to establish how they measure change and impact.

As part of the research, an invitation-only workshop to consider impact was held at King's College London on the 2nd and 3rd of May. This was an intensive experience for all involved and focussed upon some of the key challenges for this research project. The key feature of the workshop was the truly interdisciplinary approach reflected specifically in the backgrounds of the expert practitioners attending, and the focus upon unifying knowledge from disparate perspectives.

As a result of the Experts Workshop, a draft model for IA of digital resources was created as being the most useful means to synthesise a number of models, methods and techniques.

This draft model was tested with two organisations who acted as a peer review and pipe-cleaning support to the research. These organisations were selected as a medium-large museum and library representative of the community this model is aimed towards. The National Museums Northern Ireland and the National Library of Wales both gave extensive time and effort to support the research and worked through the model in its earliest draft stages.

Some early ideas were shared on my blog, and invaluable comments and support were offered there (http://simon-tanner.blogspot.co.uk). Plus an element of social experimentation and use of ideas in consultancy with libraries, archives and museums helped to confirm some aspects of the cultural value considerations.

Appendix A provides a description of the project and the methodology used to carry out this research.

Appendix B details the outcomes of the Experts Workshop held in April 2012.

Appendix C details the outcomes of the peer review engagement with the National Museums Northern Ireland and the National Library of Wales.

Appendix D provides a glossary of the methods and data gathering techniques defined as useful to the process of IA within the context of this research.

The Bibliography details the resources consulted in the process of the research.

CHALLENGES

During the research and the Experts Workshop it became increasingly clear that the varying modes of IA have something to offer and that my inclusive approach to this research is a good one. The challenge is to rationalise these results into ways of presenting a cohesive set of methods and guidance that is most useful to memory organisations and to the cultural and academic sectors.

There are a number of challenges I have identified that many IAs have sought to address with varying success. These include:-

- the timescales in which measurements may take place remain too short for outcomes to become visible and constrained by project timescales;
- a lack of suitable benchmarks or baselines from which to measure change in the digital domain;
- a diverse evidence-base;
- the wide range of possible beneficial stakeholders;
- the difficulty in establishing useful indicators for the sector;
- the lack of skills and training in the community of practice;
- the need to review relevant qualitative as well as quantitative evidence to discover significant measurable outcomes; and
- the need to make recommendations to decision-makers based on strong evidence.

OUTCOME: THE BALANCED VALUE IMPACT MODEL

The outcome of this cross disciplinary approach is a new and targeted model of IA for the primary communities of use identified above. *The Balanced Value Impact Model* (BVI Model) brings together aspects from the disparate IA disciplines into what I hope is a cohesive and logical process. It seeks to answer many of the challenges identified here.

The BVI Model presented in this document is intended to aid thinking and decision making of those wishing to engage in IA for the cultural, heritage, academic or creative industries. It further presumes that the assessment will be measuring change within an ecosystem for a digital resource. It also acts as a guide through the process of IA to enable the core values most appropriate to the assessment to be brought to the fore and given a balanced consideration when evaluating outcomes.

CHAPTER 2: WHAT IS IMPACT?

I report here a synthesis of methods and techniques for IA so as to resolve these into a cohesive, achievable methodology for IA of digital resources. To assist and clarify our thinking and research goals I define impact as:

the measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.

It will be noted that this is not the same definition of impact as used by the academic sector for activities like the UK Research Excellence Framework (REF) which states that:

> *The assessment of impact will be based on expert review of case studies submitted by higher education institutions. Case studies may include any social, economic or cultural impact or benefit beyond academia that has taken place during the assessment period, and was underpinned by excellent research produced by the submitting institution within a given timeframe. Submissions will also include information about how the unit has supported and enabled impact during the assessment period.* (www.ref.ac.uk/pubs/2011-01/)

The reason for this research to define itself more deeply and widely than that used for the REF is to enable an extensive group of cultural, heritage and academic stakeholders to benefit from the results. It is important that this research is not only implemented and considered by the large cultural and academic organisations.

I desire for the museum or archive with a few professional staff to be able to consider and use these techniques, for the small performing arts organisation to find value in these perspectives and for the small academic research project to be able to show their impact on scholarly discourse. Thus, I want to go beyond bibliometrics and citation analysis or public appearances and media engagement. I want to increase the evidence-base available and to demonstrate that digital resources deliver a beneficial effect upon people's lives or life opportunities.

When we consider a beneficial change in someone's life or life opportunity I mean that the intervention in their life through engagement with a digital resource may deliver benefits that are, at heart, advantageous from perspectives such as:

- Educating and learning
- Engaging and increasing knowledge
- Economic and generating wealth
- Health and wellbeing
- Social and community cohesion
- Environmental and sustaining
- Political and democratising
- Technological and innovating
- Entertainment and participation
- Equality and equity

There are other perspectives one could consider of course. The UK Government has recently carried out the Life Opportunities Survey, a major social survey to explore disability in terms of the social barriers to participation (http://statistics.dwp.gov.uk/asd/asd1/los/index.php?page=los). What my list above

demonstrates is that the modes of benefit and value to be measured for impact assessment are many and varied in their roots and their perspectives.

This research deliberately looked across sectors and across disciplines. The literature review and desk research across a range of organisations, public, private, commercial, educational, governmental, non-governmental, charities et al, suggested strongly that there were many points of contrast and disagreement over how to implement IA, but alongside that contrast were clear areas of agreement upon the challenges, the best practices and the easy errors that IA can fall into.

There is a well-established, professional and mature field of IA in other sectors, and Environmental, Health, Economic or Social Impact Assessment are mature areas. These have not normally been closely associated with memory institutions methods of evaluation, particularly with regard to digital content. These established methods and communities of practice provide some scope and lessons for our distinctive view of impact.

IA spans both qualitative and quantitative methods, with measurements possible before the event (ex ante) and after the fact (ex post) methods. All IA assumes an intervention for which the effects will be measured against a set of potential beneficial stakeholders needs. The focus here is upon measuring change and evaluating the value of that change.

Khandker, Koolwal and Samad summarise in their Handbook of Impact Evaluation (2010, World Bank):

> *Qualitative analysis, as compared with the quantitative approach, seeks to gauge potential impacts that the program may generate, the mechanisms of such impacts, and the extent of benefits to recipients from in-depth and group-based interviews. Whereas quantitative results can be generalizable, the qualitative results may not be.*

Context in IA is essential. There are some core things that must be known before embarking upon an IA:

- Know what you want to assess.
- Know why you want to assess it.
- Know what you will do with the results of the assessment.
- Know how much it is worth for you to know this information.

There are 4 key current communities of use for Impact Assessment:

- Environmental
- Social
- Health
- Economic

Below I give a basic definition of these, with some consideration of the perspective they bring to our concerns around impact. I follow this up with some discussion of impact from a governmental viewpoint, and academic research perspective and then consideration of impact in the cultural industries.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The International Association for Impact Assessment provides an exacting definition of Environmental Impact Assessment (EIA):

> *IA simply defined is the process of identifying the future consequences of a current or proposed action. The "impact" is the difference between what would happen with the action and what would happen without it…*

> *The Environmental Impact Assessment (EIA) definition adopted by IAIA is "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made."*
>
> *IA has a dual nature, each with its own methodological approaches:*
>
> - *As a technical tool for analysis of the consequences of a planned intervention (policy, plan, program, project), providing information to stake-holders and decision makers; or unplanned events, such as natural disasters, war and conflicts.*
> - *As a legal and institutional procedure linked to the decision making process of a planned intervention.*
>
> (www.iaia.org/publicdocuments/special-publications/What%20is%20IA_web.pdf)

IMPACT ASSESSMENT IS OFTEN PREDICTIVE IN NATURE

Environmental IA, in particular, focuses upon identifying the future consequences of a current or proposed action. As such it becomes a technical tool to predict the likely change created by a specific planned intervention. The European Commission's definition of IA relates to a process that prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing their potential impacts. In this latter case, impact is often thought in both political and economic terms. Clearly the most important aspect of this mode of IA is to influence and inform decision makers on future interventions and potential policy pathways.

SOCIAL IMPACT ASSESSMENT (SIA)

Vanclay in his pivotal *International Principles for Social Impact Assessment* defined Social Impact Assessment (SIA) as including:

> *the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.* (Vanclay, 2003)

SIA LOOKS MORE CLOSELY AT INDIVIDUALS, ORGANISATIONS AND SOCIAL MACRO-SYSTEMS.

SIA has a predictive element but successive tools such as Theory of Change have made it more participatory and part of the process of managing the social issues. For our purposes it is useful to include *Social Return on Investment (SROI)* within the conception of SIA although others within the IA community would disagree with this approach. There are many methods and tools for SIA which may prove especially helpful in considering the life opportunities questions and indicators we need to establish.

HEALTH IMPACT ASSESSMENT (HIA)

The Northern and Yorkshire Public Health Observatory in their *Overview of Health Impact Assessment* (Grant et al, 2001) describe HIA as:

> *Health impact assessment is a multidisciplinary process within which a range of evidence about the health effects of a proposal is considered in a structured framework. It takes into account the opinions and expectations of those who may be affected by a proposed policy. Potential health impacts of a proposal are analysed and used to influence the decision-making process. A health*

> *impact assessment is based on a broad model of health, which proposes that economic, political, social, psychological, and environmental factors determine population health.*

Definitions of HIA are also changing over time, as described by this useful overview by Jennifer Mindell et al:

> *Various definitions of HIA have been proposed over time. Ratner et al. (1997) defined HIA as "any combination of procedures or methods by which a proposed policy or program may be judged as to the effect(s) it may have on the health of a population". In 1999, the WHO Regional Office for Europe added "and the distribution of those effects within the population" to include consideration of health inequalities; this concept is central to the Jakarta declaration. Further, HIA has also been described as "the use of the best available evidence to assess the likely effect of a specific policy in a specific situation", leading to comparisons with evidence-based medicine… It is generally agreed that three types of knowledge are combined in HIA: that provided by stakeholders based on their experience; local data; and publicly available evidence, including past HIAs.* (Jennifer Mindell et al, 2010)

IA RELATES TO MEASURING THE CHANGE IN A PERSON'S WELL BEING THROUGH A SPECIFIC INTERVENTION.

HIA generally considers a range of evidence about the health effects of a proposal using a structured framework. This can be used to determine population health outcomes or to defend policy decisions. The UK National Health Service uses a tool called the QALY system (Quality Adjusted Life Year). This system assesses not only how much longer the treatment will allow a person to live, but also how it improves the life of that person. The QALY is a measure of the value of health outcomes and as such is somewhat more limited than other methods used in HIA, particularly in palliative care. King's College London has developed the Palliative care Outcome Scale (POS), a tool to measure patients' physical symptoms, psychological, emotional and spiritual needs, and provision of information and support at the end of life (http://www.csi.kcl.ac.uk/postool.html). POS is a validated instrument that can be used in clinical care, audit, research and training. These forms of IA are effective at measuring interventions and have interesting data gathering mechanisms that are worthy of investigation, but generally they need very clear baselines and large comparable populations to gain significance.

ECONOMIC IMPACT ASSESSMENT

Economic Impact Assessment estimates the changes in employment, income, or levels of business activity that may result from a proposed project or intervention. There are an enormous range of means of measuring these but from a definition perspective it is helpful to look at it from the perspective of direct, indirect and induced impacts. The Office for National Statistics summarized these as follows:

- *Direct impacts occur when additional demand for a unit generates a corresponding unit of output, e.g. production of a chair*
- *Indirect impacts arise as demand for materials and fuels used to create that additional unit of output generates, in turn, outputs in other industries, e.g. wood, steel, paint, fabric, electricity, gas, water and other materials, fuels, and services used in furniture production. There will be associated increases in labour, profits and capital*
- *Induced impacts are felt as increases in compensation of employees lead to increased spending on goods and services in the economy.*
  (http://www.ons.gov.uk/ons/rel/regional-analysis/measuring-the-economic-impact-of-an-intervention-or-investment/measuring-the-economic-impact-of-an-intervention-or-investment/index.html)

Economic IA therefore looks to show that there is a fiscal return on investment that is specific and directly or indirectly measurable.

This has been used successfully in the cultural field, and in 2010 ALMA-UK commissioned a study to analyse economic impact methodologies for archives, libraries and museums and to utilise these to inform the development of economic impact toolkits with the potential to be rolled out across the sector (ERS, 2010). They focussed upon methods of Economic IA such as Multiplier Analysis, Contingent Valuation, Return on Investment, and Economic Valuation (Cost-Benefit Analysis).

FOCUS UPON THE WEALTH OR LEVEL OF ECONOMIC ACTIVITY IN A GIVEN GEOGRAPHIC AREA OR ZONE OF INFLUENCE.

Economic IA has the benefit of usually being able to identify baselines and significant indicators to measure improvement in the economic well-being of an area. They may be viewed in terms of:

- business output,
- value added,
- wealth (including property values),
- personal income (including wages), or
- jobs.

However, these measures are less satisfactory for intangible assets or for the assessment of digital domain resources. Contingent Value assessments or analysis are seeking to resolve those intangible asset measures.

For example, in 2008 National Museums Liverpool did a full economic impact assessment. They found that:

> during the Capital of Culture period, 25% of all visitors to Liverpool visited the Walker Art Gallery, 24% visited the Merseyside Maritime Museum and 15% visited World Museum, while about 5% of visitors only visited a National Museums Liverpool venue and no other attraction during their visit. In total, National Museums Liverpool is reliably estimated to be worth £115 million to the economy of the Liverpool city region, a spend that supports 2,274 full-time jobs. (National Museums Liverpool, 2008)

Compared to an annual expenditure of ~£22 million this appears to present a convincing argument, although the year in question was not indicative of every possible year given that this was Capital of Culture year.

There is also some very interesting assessment work supporting new business investment opportunities as described by the Triple Bottom Line also known as the three pillars: people, planet, profit. An impact investor seeks to enhance social structure or environmental health as well as achieve financial returns and the modes of measurement are proving interesting to this study.

EUROPEAN COMMISSION DEFINITION

Further to the above definitions, there is a very useful one from the EC that focuses upon how IA relates directly to policy and decision making:

> *Impact Assessment (IA), as defined by the European Commission, involves a set of logical steps to be followed when preparing policy proposals. It is a process that prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing*

> *their potential impacts. The core questions that must be answered in Impact Assessments conducted by the European Commission are as follows:*
>
> *1. What is the problem that needs to be addressed by public policy intervention?*
> *2. What should be the objectives of the proposed policy intervention?*
> *3. What are the main policy options for reaching the objectives identified?*
> *4. What are the likely economic, social and environmental impacts of these options?*
> *5. How do the main options compare in terms of effectiveness, efficiency and coherence in solving the problem identified?*
> *6. How can the performance of the preferred policy option be evaluated in the future?*
> (http://ec.europa.eu/governance/impact/key_docs/key_docs_en.htm)

ACADEMIC RESEARCH IMPACTS

Andrew Prescott (AHRC Leadership Fellow for Digital Transformations) pointed out recently "*there is a distinction between cultural and scholarly activity, which we don't stress enough. There is a difference between the impact of the Proms and the impact of musical scholarship. Musical scholarship may discover new pieces of music, which then have an impact through their performance at concerts like the Proms. The measures for scholarly impact are different to those for cultural impact*" (Prescott, 2012). He is quite correct. As I pointed out earlier, the academic community has often measured impact with a different definition of what the word impact means.

As the very helpful LSE handbook for Social Scientists, *Maximizing the Impacts of your Research,* states:

> *A research impact is a recorded or otherwise auditable occasion of influence from academic research on another actor or organization.*
> *a. Academic impacts from research are influences upon actors in academia or universities, e.g. as measured by citations in other academic authors' work.*
> *b. External impacts are influences on actors outside higher education, that is, in business, government or civil society, e.g. as measured by references in the trade press or in government documents, or by coverage in mass media. (LSE Public Policy Group, 2011)*

I am afraid this document you are reading does not intend to help those looking to engage in the necessary obsession with citation rates and bibliometrics that many academics find themselves concerned with. I will, however, state my opinion that citation ranking is exactly the kind of indicator that by its very nature corrupts the thing it is designed to measure. This problem of finding good indicators, that do not lead to target hitting behavior in the populace being measured, is discussed in more depth within the BVI Model chapter on Key Indicators and is addressed extremely well in the opening chapters (*The Bad Application of Good Science?*) of Simon Bell and Stephen Morse's seminal book on measuring the immeasurable in sustainability (Bell and Morse, 2008).

Clearly, this document is going to be of more assistance to those academics wishing to measure the "external impacts" in this definition - although I very much disagree with the narrowness of the conception that academe can only measure its external impacts through media and publicity oriented activities.

Academic research does change people's lives. It is incumbent upon the Academy to try to engage with these changes, to seek the means to find out more about how research fosters change and will add up to a larger benefit than another tome bending a shelf somewhere. Also, if academics are going to collaborate with the cultural, heritage and GLAM sectors then understanding the issue of impact from that perspective will be helpful in forming better projects and more useful digital resources. I understand the constraints of funding, the difficulties in identifying the beneficial stakeholders and also the long time scales for impact in the Humanities to be visible. Even in Health, the reported time lag between research funding and clinical impact is 17 years (range 10-25) (Office of Health Economics, 2008) and the Wellcome Trust has also shown that papers can easily appear 7 or more years after funding (see Appendix B). These constraints do

not, in my opinion, excuse the Academy from trying harder than it has to date and this document and the *BVI Model* seeks to provide further help, guidance and assistance to instill change in the means and modes of Impact Assessment for academic research.

IMPACT ASSESSMENT AND LIBRARIES, MUSEUMS AND ARCHIVES

In their valuable book, *Evaluating the Impact of Your Library,* Markless & Streatfield (2006) define impact as:

> *Any affect of the service (or of an event or initiative) on an individual or group. This effect may:*
>
> - *be positive or negative*
> - *be intended or accidental*
> - *affect library staff, senior managers, users/customers, pupils, teachers, parents et al.*
>
> *The impact can show itself… through discernible changes, such as shifts in:*
>
> - *quality of life: e.g. self-esteem; confidence; feeling include; work or social prospects*
> - *educational and other outcomes: e..g. skills acquired; educational attainment; levels of knowledge.*

Definitions in this GLAM (Galleries, Libraries, Archives and Museums) space tend to focus upon what can be measured and their outcomes, rather than worry about an overarching definition. This focus on the pragmatic is helpful and sensitive to the needs of the community of use. But in so doing it leaves the impact disconnected from other IA strategies/strengths and consequently a lot of IA in this sector becomes inward looking without necessarily generating the information needed by decision makers.

The last large review of impact evaluation for museums, archives and libraries in the UK (Wavell et al, 2002) identified a series of outcomes that were specific to these sectors found through analysis of a large and comprehensive review of the available evaluations to that date. They found the following:

For museums they found evidence of:

- Engagement and enjoyment;
- Acquisition of new skills;
- Trying new experiences;
- Encouraging creativity;
- Increased self-confidence or changes in attitude;
- Higher order cognitive learning, particularly when individuals are already familiar with the subject on display or with museum environments;
- Younger people making connections with existing knowledge, particularly when there is appropriate mediation to facilitate the learning process.

For Archives they found evidence that related mainly to learning in terms of:

- Useful and enjoyable learning experience;
- Important source of leisure enjoyment and personal satisfaction;
- Stimulating or broadening understanding of history and culture;
- Increasing abilities, skills and confidence; and, to limited extent,
- Helping job seeking or workplace skills.

For Libraries they found evidence from library use of:

- Enjoyment and choice of leisure reading material;

- Reading development in young children;
- Academic achievement, particularly in terms of language skills;
- Acquisition of skills, particularly ICT and information literacy;
- Broader aspects of learning, such as increased motivation for learning, self confidence, independence.

In her excellent essay, Sara Selwood (2010) engages with the cultural impact of museums with an extremely thoughtful and insightful work. She "*adopts broad working definitions of culture, impacts and evidence*" as there was no singular definition that she was comfortable with to explore the themes in her essay. She states that "*the kinds of impacts that museums exert are often perceived very broadly – not least in terms of making places cultural. They tend to report those that comply with generic frameworks, although they may - in some cases - regard such outcomes as secondary to their main purpose*". Therefore the key presumptions and impact factors explored in the essay were focused from audience reflection on museum experiences in terms of:

- Articulating and exploring sensitive and difficult issues within the context of a national institution;
- generating a sense of belonging and integrating themselves within local communities and society;
- opening themselves up to different attitudes and perceptions – envisaging potential and revisiting personal histories; and
- considering their affiliations and associations – albeit to the personal and the national.

SUMMARY

My conception of impact for this document is *the measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.* The purpose is to allow an overarching view of IA that encompasses all the definitions above to unify across sectors and disciplinary perspectives. As can be seen from those definitions there is a lot of overlap between them and their findings, but at the same time there is for the cultural and GLAM sectors a lack of overall cohesion across these sectors and a lack of easy connectivity back to core IA concepts.

This report seeks to provide a cohesive model (the BVI Model) that will provide a definition of IA that can be used by any GLAM or memory organization with a pragmatic implementable framework for delivery. The BVI Model will allow these differing perspectives and sectoral differences to co-exist in one model. It will also bring into the frame something so far missing, the digital factor. The majority of the IA work investigated in the literature does not interact or reference the digital domain very well (with the notable exception of Finnis et al, 2011) and it is vital to put digital back in the frame as part of the context of the IA.

CHAPTER 3: PERSPECTIVES ON IMPACT FOR DIGITAL RESOURCES

WHAT ARE DIGITAL RESOURCES?

In my definition of Impact for this report I state that it should relate to the *existence of a digital resource*. What is meant by digital resource in this context? The scope of what constitutes a digital resource presumes a set of parameters that I will list below. These will exist within an ecosystem - a set of interdependent relationships among the resources, technologies, organisation hosting, creators and consumers. The BVI Model will provide opportunity to map and describe the ecosystem of the digital resource.

Parameters that will help scope what a digital resource is for our context include:

- There is a defined resource that is made up of a describable, cohesive set of primary and secondary materials, services, products and activities.
- The resource is accessed primarily through a digital platform (web, mobile, or other means).
- The nature of the content within the resource is digital in nature – either achieved through digitization or as born digital content.
- There is a definable group of users that the resource is intended to reach by digital means.
- The resource does not have to stand alone, it could be part of a wider set of activities, products, or services.

Andrew Green, Librarian at the National Library of Wales, is a key thinker about digital resources for the cultural, heritage, academic or creative industries and what they will mean to our digital futures. He expresses very well the scope of digital content we may wish to include in the definition of digital resource and also the opportunities inherent within them:

> *Without doubt the uses to which people in the future will put the fruits of big digitisation will be very different from today's uses. All the more reason why we should do our very best to plan today in a way that safeguards the interests of the researchers of tomorrow.*
> *It is not difficult to imagine how groups of users might respond, given the opportunities and the tools, to the presence of huge quantities of text in digital form: by annotating, translating, citing, discussing, analysing, reusing and repackaging.* (Green, 2009)

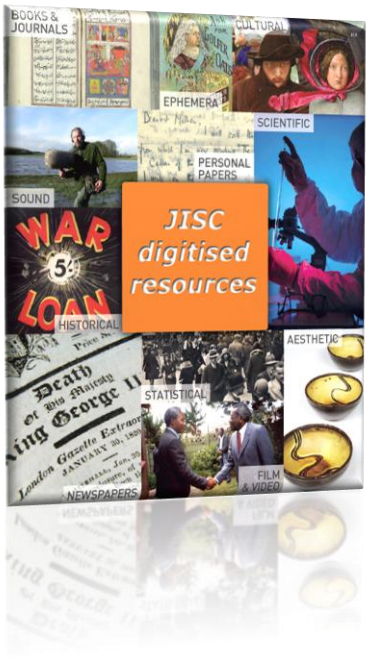
Hasan Bakhshi and David Throsby in their NESTA report: *Culture of Innovation, An economic analysis of innovation in arts and cultural organizations* (2010) give a good functional overview of the sorts of things we might consider in scope for a digital resource:

> *Nowadays, museums and galleries use new technologies for a range of functions both in the museum itself and on the web. In the physical museum, these functions include multimedia tours; interactive kiosks; simulation and virtual reality experiences; wireless connectivity enabling live feeds of information and tools; sound, laser and light shows; IMAX presentations and 'theme park-like' attractions.*
> *On the web, they include: online access to collections and databases; online exhibitions (text, image, audiovisual); virtual exhibitions (including 360-degree room views); virtual museums (including on Second Life), the use of real and imaginary exhibition and gallery spaces; downloadable and streamed multimedia content (audio, video, podcasts); interactive gallery maps; dedicated sites, games and play spaces for children and young people; personalised spaces – creating own favourites and tagging objects; use of social media networks (blogs, Facebook, Twitter, Flickr, YouTube); and shopping online (exhibition tickets, merchandise).*

I like to dream a little when thinking about both the current level of digital resources for the cultural, heritage, academic or creative industries and the opportunities that abound when we consider them:

> *Imagine walking into one of Britain's great cathedrals. As you take in the architectural, cultural and religious ambience, your mobile device automatically engages with content on your behalf.*
>
> *So, just when you ask for it, the local tour is available in your own language. But there is much more: images and information on the stained glass too high to view, videos of famous ceremonies, 3D walk-throughs showing how the cathedral may have looked in previous centuries, full text of historic and literary references, a list of people buried, baptized or married, choral works performed, oral histories of local residents, news reports through the centuries: this list of opportunities could and will grow even longer. (Tanner, 2012)*

WHAT SORTS OF VALUES, BENEFITS AND IMPACT DO DIGITAL RESOURCES DELIVER?



Recent research (Tanner, 2012) discovered a huge range of benefits and value in digital resources and collections (www.kdcs.kcl.ac.uk/innovation/inspiring.html). Although mainly focused upon the academic perspective a brief listing of the benefit headings from the research is a useful overview to the sorts of benefits and value that can accrue.

At the highest level these benefits can be summarized as learning; research; consumption; strengthening communities; building collaboration and the British university brand.

Educational benefits are gained from a wide variety of activities introducing people to new digitized information and digital experiences. Research benefits accrue when we invest in deepening our understanding of the world and build upon the intellectual legacy of previous generations. Consumption is the most obvious benefit of digital resources. The value people get from using them. The term consumption is intended to include both the "entertainment" value of engaging with digital content and the personal value added from participating in a community of use. Increased consumption will also benefit economic sustainability. Digital resources make it possible for communities to sometimes grow more cohesive as common interests and a common vision can be shared. Working together in collaboration maximizes opportunities – whether for research, education or societal benefits. Collaboration also has shown a strong support to building recognition internationally, leading to new economic and innovation opportunities. Lastly, giving access to a high volume of digital content will confer a high profile to the quality of the institution's work.

As we dig a bit further, then the following benefits become visible:

- Learning, teaching and research benefits
  - Digitized resources transform the research process
  - Easier access to scholarly publications
  - New areas of research enabled
  - Bringing collections out of the dark
  - Virtual reunification
  - Teaching benefits
  - Availability of new kinds of materials

  - Time-based media
  - Integrating many different kinds of resources
- Bestowing economic benefits
  - Competitiveness – increasing value whilst accruing cost savings & efficiency gains
  - New kinds of collaboration
  - Optimizing the research and teaching environment
  - Skills
  - New opportunities to create value through innovation and standards
- Connecting people and communities
  - Connecting communities with news
  - Community cohesion
  - A sense of place and time: a deeper engagement with the place and area people live and their personal histories
  - Community engagement through revealing content and allowing new content to be discovered
  - Oral history
  - Lifelong learning and digital communities
  - Regeneration
- Creating digital Britain
  - Developing the brand for UK Higher Education
  - Asserting the value of the British brand

And there are many other potential benefits to digitization, as outlined here:

> *One sometimes hears that digital technologies are bad news for the arts, because of a perceived dumbing down of culture, competition from the Internet for consumers' attention and threats to traditional business models. However, our research shows that not only are new digital technologies bringing new audiences to arts and cultural organisations, they are creating new sources of cultural and economic value, and in some cases taking the artform itself in new directions.* (Bakhshi and Throsby, 2010)

> *Cultural organisations can now reach audiences in ways that were previously unimaginable. Consumers can access content 'anywhere, anytime' and social networks are becoming important as places where people can discover and discuss content, challenging established models for promotion based on advertising and marketing (Ibid). Indeed, a recent report for DCMS (2010) suggested that all cultural organisations should have an overarching digital strategy that fits their overall strategic purpose, their vision and mission and that their assets should be made available via social networks, other institutions and media organisations.* (Selwood, 2010)

DIGITAL AND IMPACT

If Impact is about measuring and evaluating change then why isn't digital better measured? Digital has ushered in a fountain of change all around us and yet as Selwood states "*relatively little is known is about how digital technologies are impacting on people's commitment to museums*" (2010) and I think we can say much the same for other areas of culture, heritage and even the academic world.

Technology infrastructure is shifting at what some consider an exponential rate. The proliferation of exponential growth laws such as Moore's Law, Kryder's Law, Metcalfe's Law and Guilder's Law suggests that digital may even be immeasurable in terms of impact due to the sheer amount of change going on. As was famously stated by Douglas Adams: "*technology... is stuff that doesn't work yet. We no longer think of chairs as technology, we just think of them as chairs*" (Adams, 1999) - so does this mean that we cannot measure digital change until well after the change has happened? Because firstly it is changing so fast and

secondly the change is unreliable, error prone, fallible and possibly unsustainable? Digital technology is inherently disruptive and a change maker – whether for good or ill is mainly in the eye of the beholder (or as we will discover, our stakeholders). However, I subscribe to the mantra promoted by Douglas W. Hubbard "*anything can be measured. If a thing can be observed in any way at all, it lends itself to some type of measurement method. No matter how "fuzzy" the measurement is, it's still a measurement if it tells you more than you knew before*" (Hubbard, 2009). What is vital to a good IA is to choose wisely the means of measurement and to clearly know what you want to measure and why.

A key problem is disambiguating a change in behavior from the underlying technology itself such that exploration of the digital resource becomes visible. Measuring the technological change and impact of a move from letter writing to email is straightforward; measuring the change in what people write about and why, from letters as opposed to emails is not.

Beneficial impacts are often two dimensional in this area, revolving around efficiency and effectiveness. But this leaves many cold and feeling uninvolved in the process of change. Merely delivering more content faster is not a clarion call that now delivers greater funding or engenders excitement in senior decision makers when related to the cultural, heritage and academic sectors. One reason is that the commercial sector has proven itself consistently better at delivering more and faster content even if its veracity and value may be questionable. Secondly, the cost of production will very often outweigh the short-medium term usage statistics and direct Return on Investment unless we are constrained to delivering only a greatest hits version of our culture, heritage or education.

Measuring and interpreting the broad impact of digital resources remains a complex undertaking. There is a mass of extant evidence, but attempts to interpret such evidence often tends to rely on commonplace assumptions about the nature of digital resources, without fully appreciating the actual way in which end users interact with such digital content. Digital projects and programmes need to engage with the core principle of IA: how does this change people's lives?

As Selwood states "*neither attendance and access figures, numbers of Google search results, catalogue sales nor estimated readership statistics are necessarily indicative of cultural impact*" (2010). Very little attempt has been made to provide a deeper analysis that draws evidence from a number of sources and provides a compelling account of the advantages of digital content and resources to our sectors. When I looked at value, benefit and impact for digitized content, statistical measures and evaluations were seen as of primary importance to provide a sense of the scale of use and the penetration of digitisation benefits into the community (Tanner and Deegan, 2011). However, in actuality these were mainly lacking in sufficient depth and evidence over time, often relying too heavily upon measures of numeric achievement as performance indicators for the project rather than measuring actual impact or change in the people who benefitted from their existence. In many ways the funder is as much to blame as the project leadership as funding often ends just when the digital resource is newly born and the story is about to get interesting.

Jane Finnis, Chief Executive at Culture24, has taken bold steps to try to engage with this thorny issue, and as she states in the forward to *Get Real: How to evaluate online success* (Finnis et al, 2011):

> *During the past ten years millions of pounds have been spent on digital activities in the cultural sector – websites, databases, content management systems, campaigns, digitisation, archiving, editorial, documentation and more.*
> *As a sector, we now have a fabulously rich online set of data at our disposal and a seriously talented set of professionals eager to engage the public (in all its different forms) with that content.*
> *But with less money it is more important than ever that investments are made wisely… we should invest our time, energy and cash based on an honest evaluation of what works well and commit fully to learning from our mistakes so that we can get better…*
> *The evidence so far is that we are only small players in the online world. Can we change this? I believe so. It is time to get real.*

SUMMARY

Digital resources exist within an ecosystem - a set of interdependent relationships among the resources, technologies, organisation hosting, creators and consumers. The BVI Model will need to provide an opportunity to map and describe the ecosystem of the digital resource. The measurement of impact for digital resources has so far been largely statistically driven and the BVI Model will have to accommodate that quantitative approach whilst also suggesting more qualitative measures than currently used to deliver convincing evidence of change. The BVI Model will have to be able to measure intangibles and also provide multiple viewpoints on the change as technology is moving so fast that focusing upon just one perspective will quickly become out-moded.

CHAPTER 4: KNOWING MORE AND MAKING THE CASE

WHY DO WE NEED TO KNOW MORE?

Delivering digital content has been based upon a highly aspirational model in the past. As Dame Lynne Brindley of The British Library stated:

> *We are sitting on a goldmine of content which should be within a coherent UK national digital strategy. To support Digital Britain we need to deliver a critical mass of digital content. Access... ought to be the right of every citizen, every household, every child, every school and public library, universities and business. That's a vision worth delivering on.* (Tanner and Deegan, 2011)

But there is a backlash against this aspiration and the "*build it and they will come"* attitude - with a sense that it really is not delivering on the promises made. This is epitomized by Nat Torkington's rant in *Libraries: Where It All Went Wrong*, a speech delivered to provoke the National and State Librarians of Australasia:

> *You want a massive digital collection: SCAN THE STACKS! You agonize over digital metadata and the purity thereof... And you offer crap access.*
> *If I ask you to talk about your collections, I know that you will glow as you describe the amazing treasures you have. When you go for money for digitization projects, you talk up the incredible cultural value...*
> *But then if I look at the results of those digitization projects, I find the shittiest websites on the planet. It's like a gallery spent all its money buying art and then just stuck the paintings in supermarket bags and leaned them against the wall.* (Torkington, 2011)

As Sara Selwood reported in *Making a difference: the cultural impact of museums* for the National Museum Directors' Conference (NMDC), one member stated a common position:

> *In terms of actual evidence of cultural impact, there is not a lot. We have a fair amount of evaluation which points to attitudinal changes amongst visitors/users in response to particular pieces of programming – particularly, for example, exhibitions which add new narratives or perspectives... But it would be hard make a strong case for this leading to cultural change as it could be argued that we are 'preaching to the converted'.*

She goes on to state:

> *Cultural institutions themselves are often myopic about commissioning impact evaluations, and use them to assess the effectiveness of their own management systems rather than finding out whether they have made a difference to their audiences, or contributed in some way to cultural change. (Selwood, 2010)*

And as David Hunter at the National Library of Scotland stated:

> *Thinking about the outcomes that we want to see as a result of our mission... is more challenging - and interesting - than recording standard traditional information about outputs such as the number of reader visits received, enquiries dealt with or hits on the website. It requires us to think about what our users do with the resources they access... Do they use these resources to create new valuable knowledge? Or is their interaction with [our] resources and services superficial? Of course, we really don't know the answer to these questions. We do know that many users are creating valuable new knowledge - and we can probably also assume that for other users, much interaction with our resources is indeed superficial.* (Hunter, 2009)

We also live in an environment where Governmental measures default to quantitative performance indicators in terms of public value and accountability where very basic metrics and monetary value remain pre-eminent as proxies for qualitative experiences.

There are thus a lot of competing opinions on how best to justify and fund activity in the future. Particularly as digital resources and collections now have an uphill struggle for funding with a backdrop of £100 million expenditure over 15 years and a lack of adequate multi-dimensional evidence to demonstrate meaningful change in people's lives or opportunity.

VALUING CULTURE

As a community we have to respond to the call from all governments for better indicators of cultural value. Dave O'Brien (who was an AHRC/ESRC Placement Fellow with the UK DCMS in 2010) wrestles with the conundrum of how the cultural sector can prove its value in a way that can be understood by decision makers. He comes firmly to the view that value is the key phrase but has to be viewed through the lens of the UK Treasury's The Green Book which stresses the need for Cost Benefit Analysis (CBA) to guide government decisions. In his excellent report, *Measuring the Value of Culture,* he states:

> *The cultural sector is a rich, mixed economy, of large organisations with international horizons and commercial aims, through to amateur institutions with a more local focus. However no matter what the size or outlook of an organisation, or its relationship with central government… the importance of understanding the framework used for central government decisions cannot be overstated.* (O'Brien, 2010)

One way to achieve this would be via Cultural Economics, as supported by Bakhshi, Freeman and Hitchen in their paper *Measuring intrinsic value – how to stop worrying and love economics:*

> *Cultural economics, potentially, can in fact provide precisely those guarantees required, by the critics of instrumentalism, that choices about arts funding should be freed from the prejudices which arise if intrinsic value is neglected. 'Good' economics – the rigorous application of cultural economics – can thus reverse a traditional but obstructive line-up which pits economists, cast as architects of instrumentalism and all things philistine, against arts leaders, cast as beleaguered defendants of intrinsic value and all things aesthetic.* (Bakhshi, Freeman and Hitchen, 2009)

We must, in my opinion, grasp issues of Cultural Economics but also go further. If the community of culture, heritage and the academic world harness ourselves solely to economic measures, such as Contingent Valuation or Willingness to Pay for instance, then we would be measuring only one vector of a multi-variant environment of value and life-changing impact. That sole focus on economic value would help Government bodies to make decisions but I question how helpful to the beneficial stakeholders or the organisational decision makers this would prove.

I suggest that defining modes of value for digital culture that are not solely economically driven but which do contain indicators of value that can be measured and can demonstrate change are important to consider the impact particularly of digital resources.

Thinking about sustainability also puts a focus upon the need to know the impacts of our digital resources:

> *Digital resources do not exist in a vacuum – sustaining them requires that project leaders understand the unique value that a resource provides and where it fits within the competitive landscape. What does a resource contribute that sets it apart? Is its content rare or unique […]? Does the resource provide important services or functionality that can be found nowhere else?* (Maron et al, 2009)

I think that a balanced approach is required. One in which we can possibly show that the digital resource demonstrably made the host organisation grow better - more efficient and effective in reaching its goals; whilst stakeholders have become more satisfied, found social and economic benefit of tangible worth and society has been enhanced. This would be a significant move forward from any single perspective measure towards a measure that enables several perspectives.

BALANCING PERSPECTIVES

One way to organise our thinking might be to use the Balanced Scorecard approach to considering the Impact of digital resources. This approach could balance out the Impacts being assessed and ensure that multiple perspectives are enabled. By combining economic measures, social and non-financial measures in a single approach, the Balanced Scorecard should provide richer and more relevant information and evaluation of outcomes (Fox, n.d.) (Kaplan and Norton, 1992) (Marr, 2012).

The British Council uses a scorecard of "*efficiency, equity, economy, effectiveness*" to aid their assessment of impact across millions of online users (see Appendix B). It is adapted from the Balanced Scorecard model that has been used and adapted in a number of arenas to engage with intangible benefit. Development agencies and the World Bank use the Balanced Scorecard frequently. The scorecard model was also used by the eSPIDA project to provide value perspectives on digital preservation (www.gla.ac.uk/services/library/espida/).

I suggest that IA for digital resources should seek to show that:

- the audience, the beneficial stakeholders and wider society has been affected and changed in a beneficial fashion,
- the activity is demonstrating economic benefits to the organisation or to society,
- that the digital resource is enabling innovation which is supporting the social and economic benefits accrued, and
- that the organisation creating/delivering the digital resources have been benefitted within its internal processes by the innovation demonstrated.

In short, has the digital resource demonstrably made the organisation grow better - more efficient and effective in reaching its goals; whilst stakeholders have become more satisfied, found social and economic benefit of tangible worth and society has been enhanced?

To translate this into the Balanced Scorecard approach I would suggest the following core headings:

- Social and Audience Impacts
- Economic Impacts
- Innovation Impacts
- Internal process Impacts

This would assess the way Impact is occurring both externally and internally to the organisation delivering the digital resource. Thus, allowing a balanced perspective of changes to people's lives that use the resource and changes to the organisation through the existence of the resource.

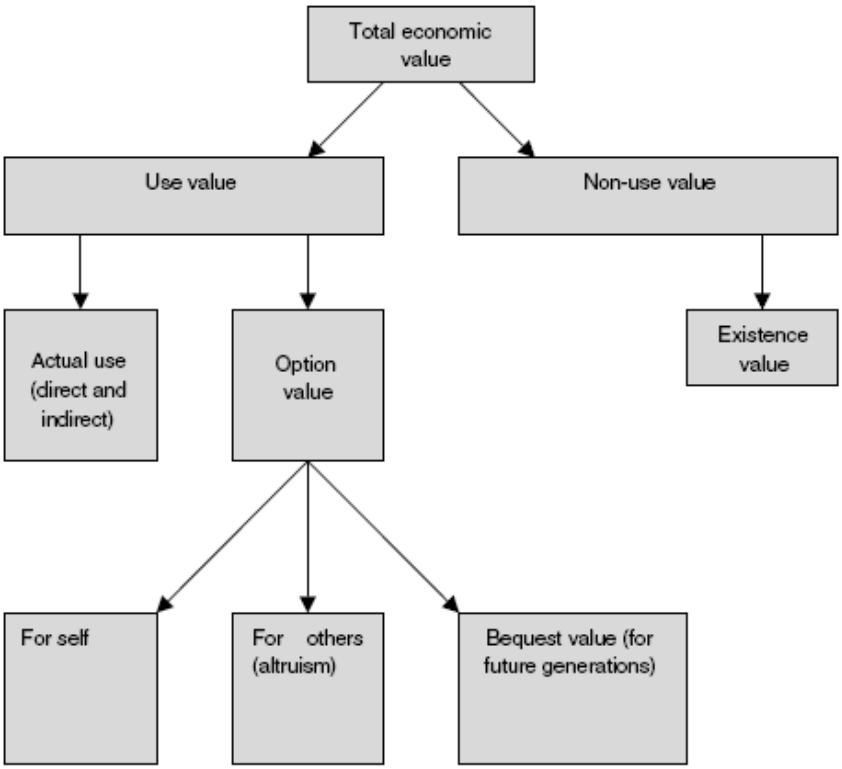
The advantage of the Balanced Scorecard is that it can simultaneously encompass the governmental cultural economics viewpoint with the desire to look at more intangible modes of value and social impact models. If we are going to make strong statements of the benefit of sustaining our digital resources then it is essential to be able to connect that value to the users such that they support the resource's existence

and a convincing value statement to the hosting organisation so they continue to support the resource whether through financial or other means.

CONSIDERING MODES OF VALUE

Measuring impact through a Balanced Scorecard would be too blunt an instrument to be able to work across all the varied cultural, heritage, GLAM and academic sectors without significant modification for each. The Scorecard thus needs to be contextualised in a way that would allow values important to those sectors to shape the IA. If such values could be attached to each of the Scorecard headings above then a more faceted and exacting IA can be achieved.

In O'Brien's report he references the work of Pearce and Ozdemiroglu (2002) in considering total economic value and represents this in this diagram (O'Brien, 2010):

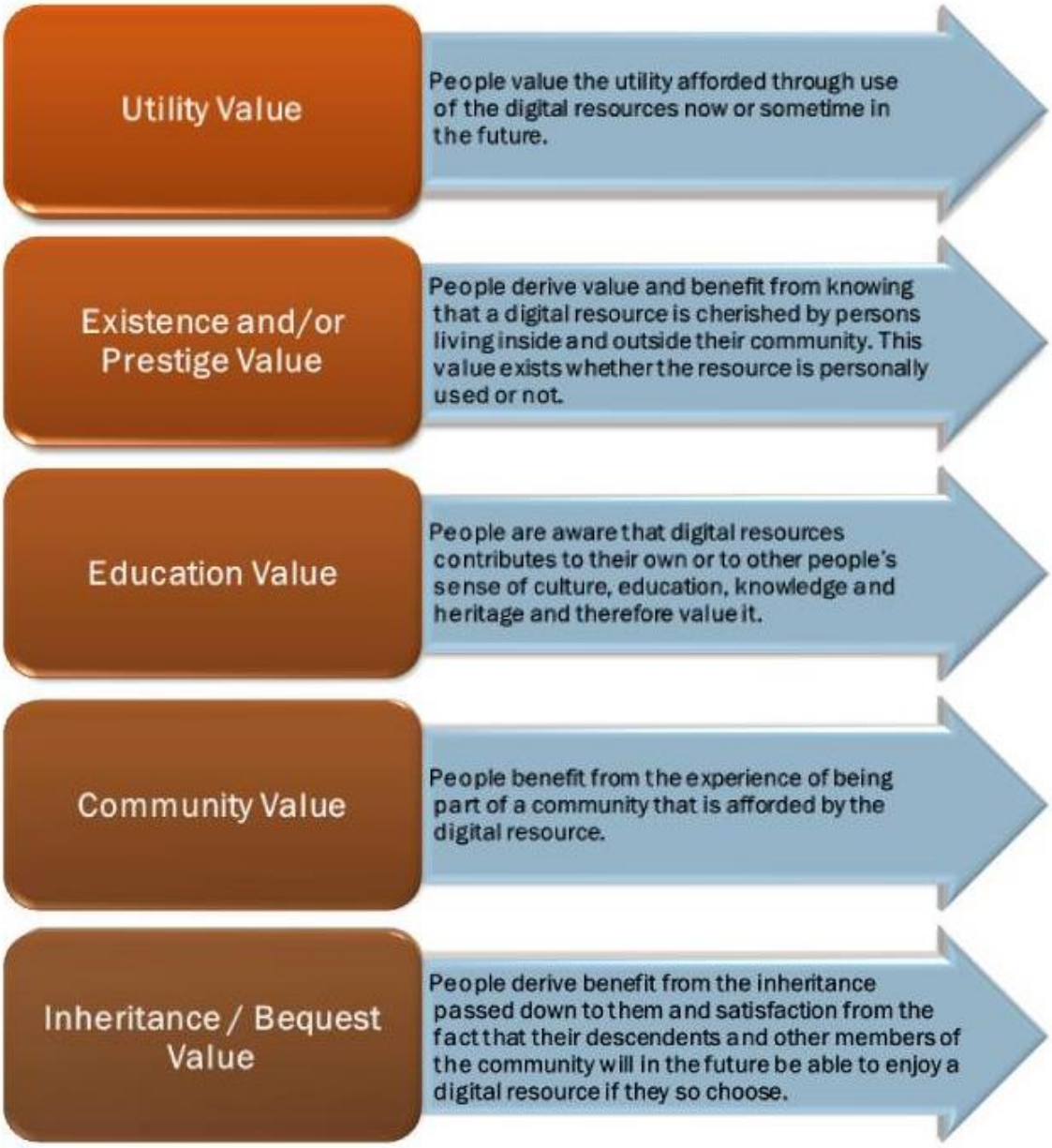


This is directly based upon the work of the Swiss and German economists, Bruno S Frey and the late Werner W Pommerehne, whose seminal work *Muses and Markets: Explorations in the Economics of the Arts* (1989) considered 5 modes of cultural value.

Inspired by these models I would suggest, for the purposes of aiding and supporting the process of Impact Assessment, that a new 5 Modes of Cultural Value for Digital Resources should be established as shown in Figure 1. Other values may be established if desired, but these 5 Modes should at least be addressed in full. Please note that I refer to Modes of Cultural Value as these are not absolute cultural values. Modes relates thus to a way or manner in which the cultural value occurs or is experienced, expressed, or achieved most frequently in a given set of data.

The importance of these Modes of Cultural Value is to provide context at the design and evaluation of outcomes stages for IA and thus ensure that measures consider not just direct benefits but also intangible value. Digital resources and collections can be valued even by those not actively using them, they can have benefits that reflect back upon the creators and users and their communities and they have benefits that extend well into the future to the next generation.

FIGURE 1: 5 MODES OF CULTURAL VALUE FOR DIGITAL RESOURCES



The Modes of Cultural Value will need to interact with the Scorecard core headings. I suggest that each heading in the Scorecard should be paired with one or more of the Modes of Cultural Value. Therefore, in an example of a community museum with a strong social focus to the digital resource it might make sense to pair the need to measure Social Impact with exploration through the Community Value. Whereas, a university with a digital collection relating to a famous historical figure may find that they desire to explore the Social Impact through the lens of the Education Value. Immediately, this reveals that the cascade of the sorts of methods and indicators to be used for this Social Impact perspective for IA would be quite different from each other in those examples.

The Modes of Cultural Value were inspired, as stated before, from the work of Frey and Pommerehne. These Modes have been honed through an element of peer review, including in detailed review by a medium-large museum and library representative of the community this model is aimed towards. The Modes have also been tested in various real life environments, including social experimentation and also as part of consultancy with various museums, libraries and archives. So far, the Modes have proven to be

broad enough, versatile, equitable and helpful to provide a context and a focus for understanding what values drive an organisation within an IA context.

SUMMARY

This research is looking to unify perspectives from many fields of Impact Assessment in a cross disciplinary way that will deliver additional modes of evidencing value and benefits to stakeholders whilst affording decision makers (both internally and externally to cultural organisations) with the information they need as well.

As such it was decided to take two things forward into the Balanced Value Model:

- The first is to enable a Balanced Scorecard type perspective upon the design of the model so that evaluation of outcomes from the Impact Assessment will reflect those core facets.
- The second is to ensure that Cultural Value is given due consideration in the creation of key criteria and indicators for measurement.

Using these contextualising elements will clearly modify thinking regarding the techniques, methods, indicators, data gathering and outcome evaluation.

CHAPTER 5: BUILDING A MODEL FOR IA OF DIGITAL RESOURCES - THE BALANCED VALUE IMPACT MODEL

This section will explain some of the reasoning that has led to the development of the Model and also discuss in more detail some of the key elements of the Model.

Chapter 6: The Balanced Value Impact Model will explain the application and implementation of the Model and so these two chapters (5 and 6) can be consulted together as required for clarity.

A BRIEF OVERVIEW OF THE BALANCED VALUE IMPACT MODEL

The BVI Model is intended to aid the thinking and decision making of those wishing to engage in IA. It also acts as a guide through the process of IA to enable the core values most appropriate to the assessment to be brought to the fore and given a balanced consideration when evaluating outcomes.

The BVI Model is intended to suit organisations that wish to carry out an Impact Assessment which are from the cultural, heritage, academic or creative industries. It further presumes that the assessment will be measuring change within an ecosystem for a digital resource.

There are some core things that must be known before embarking upon an Impact Assessment:

- Know what you want to assess.
- Know why you want to assess it.
- Know what you will do with the results of the assessment.
- Know how much it is worth for you to know this information.

The Model is applied in five core functional stages:

1. Context
2. Analysis and Design
3. Implementation
4. Outcomes and Results
5. Review and Respond

FIGURE 2: OVERVIEW OF THE BVI MODEL STAGES

The stages of the Model are part of a logic model with activities that relate to each stage to assist in the design, implementation and evaluation of results from the IA. These are illustrated here.

FIGURE 3: THE ACTIVITIES FOR EACH STAGE OF THE BALANCED VALUE MODEL

THE EXPERT WORKSHOP

As part of the research, an invitation-only Workshop to consider impact was held at King's on the 2nd and 3rd of May 2012. This was an intensive experience for all involved and focussed upon some of the key challenges for the research project as described earlier.

One key feature of the Workshop was the truly interdisciplinary approach reflected specifically in the backgrounds of the expert practitioners attending and the focus upon unifying knowledge from disparate perspectives. A full report of the Workshop can be found in Appendix B.

The backgrounds and perspective of the participants included:

- Environmental
- Traffic and transport
- Economic
- Development
- Sustainability
- Social and community
- Health and palliative care
- Academic and scholarly communications
- Audience development
- Library, museum and culture organisations
- Funding bodies such as JISC and Arcadia

Whilst many of the participants had an academic background there were notable representatives from the British Council and the Wellcome Trust.

Our core aims were the following:

- Learn from the experience of the community of practitioners
- Share knowledge and understanding across subject boundaries
- Establish useful indicators of change for the sector reflected in the research project
- Consider suitable benchmarks or baselines from which to measure change
- Explore methods, tools and techniques
- Identify areas for further work

The results of this workshop were startling, insightful and shaped the outcomes of this research and the creation of the BVI Model considerably. I would however like to take a moment to reflect on the interdisciplinary aspect as this relates very clearly to Digital Humanities sensibilities.

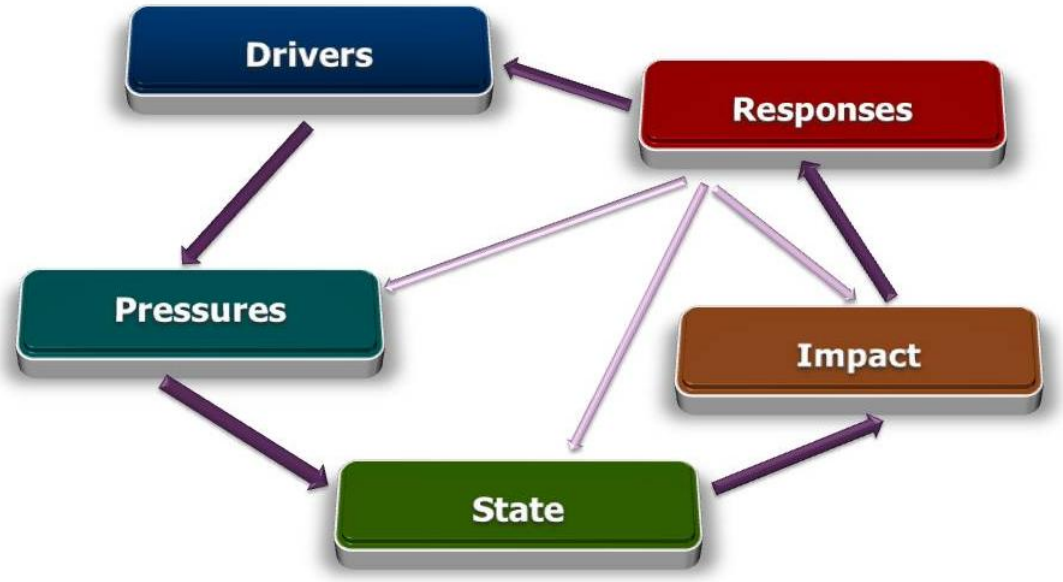
Running such an interdisciplinary workshop is high risk in terms of achieving usable outputs because it is possible that the starting perspectives, the language used and the goals could be too divergent to enable a useful dialogue. We added to this risk factor by withholding (in a transparent and clear way) information about aspects of the research team's perspectives and current thinking. This enabled us to focus upon the thinking and the knowledge of the participants with skilled facilitation from Dr Jan Rae. Participants took a little time to become comfortable with this approach but in a short while they found so many points of contact between their work and ideas that the intellectual ferment overcame initial misgivings.

The feedback at the end of the workshop reflected that it was uncomfortable but actually essential. If we had placed our ideas on the table at the beginning, then the workshop would have been a critique of these ideas and not an intensive knowledge sharing experience of the participants' ideas. Turning the participants into active stakeholders, who benefitted as well as contributed, has proven very effective.

Consider for instance the disparate perspectives on what are the interesting aspects of change to measure across subjects:

- The British Council is interested in a scorecard approach with four core measures from a Development perspective: efficiency, equity, economy, effectiveness.
- The Health sector takes more of a statistical view, measuring change related to an intervention, whether this change is positive or negative. Palliative care assessment is engaging in subjective measures (often with visualization techniques) focussed on the individual's quality of life: their level of pain, for instance.
- Sustainability specialist Simon Bell (Open University) has developed a Triple Task Method with stakeholder-defined assessment of meaningful change.
- The DPSIR (Drivers, Pressures, State, Impact, Responses) model (below) was considered widely as a relevant mechanism for modelling change.

FIGURE 4: THE DPSIR MODEL



When we further investigated these disparate methods and perspectives we found that there were clear areas of agreement and commonality. The DPSIR model reflects that there are common stages and questions in any IA process that will be undergone. There is also a common sense of frustration with the mis-use of statistical models to overstate effects. The importance of reliable data-gathering techniques and the use of SMART indicators were also deemed essential components.

IA is a complex area but there are ways to consider it holistically and to engage with multiple methods. The strategy that came from these insights was to unify the processes into a coherent chain of activity whilst allowing the context of the Drivers/Pressures/State from the DPSIR model to be accounted for in selecting key indicators, defining beneficial stakeholders and evaluating outcomes from IA.

PEER REVIEW

The draft model was tested with two organisations who acted as a peer review and pipe-cleaning support to the research. These organisations were selected as a medium-large museum and library representative of the community this model is aimed towards. The National Museums Northern Ireland and the National Library of Wales both gave extensive time and effort to support the research and worked through the model in its earliest draft stages. This is reported in full in Appendix C. Both of these organisations worked through the Model as much as possible and both found different issues (at that stage in the project) that were barriers to use. These included the language of IA and how the logic model worked. These have been addressed and it is a credit to the openness of the peer reviewers that these essential improvements were possible.

Some early ideas were shared on my blog and gained invaluable comments and support from the community (http://simon-tanner.blogspot.co.uk). Plus an element of social experimentation and use of ideas in consultancy with libraries, archives and museums helped to confirm some aspects of the cultural value considerations.

SOME REQUIREMENTS FOR THE BVI MODEL

The work described previously in this document leads to some logical requirements and recommendations that had to be incorporated into the BVI Model. The key considerations in enabling a holistic viewpoint for IA are to afford context within the creation, delivery and evaluation of the assessment. Whilst many aspects and processes of IA will remain similar whatever the context there are things specific to this community, to the digital resources and the needs driving IA that have to be incorporated into a Model. These particularly relate to perspectives, context and evaluating outcomes.

PERSPECTIVES

What became very evident in the literature review, contact with experts and the potential users of the Model was that perspective is incredibly important to IA. One person's benefit is another's deficit.

For instance, when I described the 20 million plus online visitors to the Codex Siniaticus digital resource, one of the most important books in the world, an IA expert replied (with tongue firmly in cheek) that economically it could be argued the nation was in deficit as those 20 million plus viewers were not shopping online or engaging in tangible economic activity when they were viewing this treasure.

The one immutable value is time, and any IA looking at the change in people's lives or life opportunities has to ask whether that change is beneficial to them and if it benefits them, does that benefit come at a cost/deficit to others? IA has at its heart the need for perspective to be recognised and taken into consideration.

In other words, an IA at best can only tell a strong narrative of benefit to defined stakeholders in certain circumstances at given times. From this perspective we can make suggestions and extrapolations of wider benefits. However, if we overreach or over-claim in those assumptions beyond what is tenable and provable then the whole fabric of the evidence gathered will be called into doubt.

For the results of an IA to be trusted as good evidence on which to base a major decision (such as strategy, policy or funding), then it is dependent on the perspective being clearly and transparently stated.

Thus, for the BVI Model, the following attributes of perspective will be required:

- The Model will be driven by the needs of the organisation that is responsible for the digital resource. The stakeholders will be a part of the context and key drivers for why the IA will happen but essentially the Model is intended as an organisation-led tool.
- We have to acknowledge and describe the values, the objectives and the stakeholders of the organisation before agreeing which aspects of the organisation and its digital resource are to be included in the scope for the IA.
- Stakeholders will have to be involved and we must understand their role in the IA very clearly.
- The factor of assessing a digital resource is critical to the Model and thus understanding the perspective provided by the ecosystem of the digital resource is essential.
- We will need to establish the context and the perspective for the IA the Model will address. This suggests some processes to include in the Model, such as:
    - Understanding the values and objectives of the organisation driving the IA.
    - Defining the ecosystem of the digital resource
    - Understanding and analysing the stakeholders
    - Situation analysis of the organisation and digital resource
    - Establishing key criteria and objectives.

Reflecting back upon the DPSIR model this would relate to trying to understand the Drivers and the Pressures leading to the State to be assessed in the Impact stages.

CONTEXT

Context in IA is essential. There are some core things that must be known before embarking upon an IA:

- Know what you want to assess.
- Know why you want to assess it.
- Know what you will do with the results of the assessment.
- Know how much it is worth for you to know this information.

The BVI Model has a Context Stage specifically to address these issues.

I considered the use of the DPSIR model to guide the development of the BVI Model to be a straightforward element in the design. From here though, it is essential to add two further layers of context to enable the target users of this IA process to gain the most useful and meaningful outcomes.

- The first is to ensure that Cultural Value is given due consideration in the creation of key criteria and indicators for measurement.
- The second is to enable a Balanced Scorecard-type perspective upon the evaluation of outcomes from the IA.

Using these contextualising elements will clearly modify thinking regarding the techniques, methods, indicators, data gathering and outcome evaluation in the IA.

I conceive of Values as the Drivers in the DPSIR model and the Scorecard as the equivalent to Pressures and Responses in that model. However, it became clear through the peer review process that putting them both in those terminologies and also in that hierarchy would not work for this community. Whilst Values will drive all the processes of the IA and are the key elements to understanding the perspective as described above, if you put them above or in front of the Scorecard they are intensely hard to focus upon as they

themselves have no context within the IA process itself to relate to. In short, considering a Value without a specified purpose is too hard and intangible for the practitioner to logically use in planning and design of an IA.

Therefore, the BVI Model is prescriptive in one area. The assessment will have 4 perspectives that it will evaluate and these relate to the Scorecard approach:

- Social and Audience Impacts
- Economic Impacts
- Innovation Impacts
- Internal process Impacts

For each of these perspectives – which in the Model are referred to as Balancing Perspectives – a set of contextualising Value Drivers will be explored. I discuss the Balancing Perspectives more in the next part of this section but want to discuss the Value Drivers at this point.

In the Model we will consider for each Balancing Perspective the associated Value Driver that will link the need for the IA to the objectives, stakeholders and methods.

The Value Drivers are:

- Utility Value
  - People value the utility afforded through use of the digital resources now or sometime in the future.
- Existence and/or Prestige Value
  - People derive value and benefit from knowing that a digital resource is cherished by persons living inside and outside their community. This value exists whether the resource is personally used or not.
- Education Value
  - People are aware that digital resources contribute to their own or to other people's sense of culture, education, knowledge and heritage and therefore value it.
- Community Value
  - People benefit from the experience of being part of a community that is afforded by the digital resource.
- Inheritance / Bequest Value
  - People derive benefit from the inheritance passed down to them and satisfaction from the fact that their descendants and other members of the community will in the future be able to enjoy a digital resource if they so choose.

The purpose of the Value Drivers is to get right to nub of the reason for doing the IA. It helps to position the organisation, to understand the stakeholder benefits and to clarify the key drivers for the IA. Each of the Perspectives will naturally lend themselves to certain Value Drivers (for example, Community Value and Social Impacts). However, when used in a ranking system (ranking them 1-5 and choosing the top 2 or 3) surprising priorities surface especially if you link the priority setting with stakeholder engagement to find out what matters to your stakeholders.

Thus, for the BVI Model, the following attributes of context will be required:

- Balancing Perspectives to allow a faceted view of Impact.
- Value Drivers to ensure that priorities are matched to Perspectives.
- Understanding the stakeholders so that priorities are set appropriately.

EVALUATING AND PRESENTING OUTCOMES

A purpose of IA is to provide evidence to decision makers. Providing clarity in the presentation of evidence and a faceted view of the impacts achieved will deliver the greatest strength to the case being presented from the IA.

The 4 Perspectives of the BVI Model seek to show impacts such that:

- The audience, the beneficial stakeholders and wider society have been affected and changed in a beneficial fashion;
- the activity is demonstrating economic benefits to the organisation or to society;
- the digital resource is enabling innovation which is supporting the social and economic benefits accrued; and
- the organisation creating/delivering the digital resources has been benefitted within its internal processes by the innovation demonstrated.

The BVI Model would assess the way Impact is occurring both externally and internally to the organisation delivering the digital resource, allowing a balanced perspective of changes to people's lives who use the resource and changes to the organisation through the existence of the resource. The advantage of this approach is that it can simultaneously encompass the governmental cultural economics viewpoint with the modes of value and social impact models.

When data is gathered it is divided into the perspectives through the intrinsic nature and use of the Model Framework and so outputs are already segmented into these perspectives. Thus, outcomes and impacts will more easily and naturally fit themselves to the 4 perspectives. We then have to conceive of moving from data outputs to outcomes and then to impacts.

Outputs are the direct products of the digital resource being measured with the IA. They consist of data, both in statistical quantitative form and qualitative evidence modes. Outcomes are the specific changes and consequences evaluated for things such as behaviours, knowledge, skills, status, wealth, wellbeing or effectiveness to mention a few instances. Impacts are thus the fundamental changes that can be assessed of occur, because the outcomes have demonstrated a set of benefits to the defined group in a certain timeframe. Such benefits can be intended or unintended and, most importantly, may be either positive or negative to some or all of the stakeholders.

The BVI Model needs to be capable of providing a strong narrative, backed with clear evidence of the change achieved, to ensure that decision-makers are able to make better-informed decisions and are more likely to follow the recommendations. By demonstrating change it will help those that have to speak to paymasters who care for naught but a bottom line return on investment assessment. It will also suit those who wish to measure value in its more intangible terms. But all will find a balanced approach that understands that innovation, internal benefits and the economic impact of a digital resource should be balanced with a sense of cultural value and of social benefit.

Thus, for the BVI Model, the following attributes of evaluating and presenting outcomes will be required:

- The capacity to evaluate outputs, to deliver outcomes that resolve into impacts.
- To use the Perspectives to provide a structure for the narrative of evidence that expresses both internal organisation benefits as well as externally facing social and economic benefits.
- To deliver clarity for decision makers.

CHAPTER 6: THE BALANCED VALUE IMPACT MODEL

This Chapter describes the application and implementation of the BVI Model.

INTRODUCTION

The BVI Model is intended to aid the thinking and decision making of those wishing to engage in Impact Assessment (IA). It also acts as a guide through the process of IA to enable the core values most appropriate to the assessment to be brought to the fore and given a balanced consideration when evaluating outcomes.

The BVI Model is intended to suit organisations that wish to carry out an IA which are from the cultural, heritage, academic or creative industries. It further presumes that the assessment will be measuring change within an ecosystem for a digital resource. The BVI Model brings together aspects from the disparate IA subject disciplines into a cohesive and logical process for IA.

The BVI Model allows for both qualitative and quantitative methods, with measurements possible before the event (ex ante) and after the fact (ex post) methods. All IA assumes an intervention for which the effects will be measured against a set of potential beneficial stakeholders needs. The BVI Model focus is upon measuring change and evaluating the value of that change.

The model is applied in five core functional stages:

1. Context
2. Analysis and Design
3. Implementation
4. Outcomes and Results
5. Review and Respond

These can be expressed as a workflow like this:

FIGURE 5: OVERVIEW OF THE BVI MODEL STAGES

The Context and Review and Respond sections express the essential components of the BVI Model. These stages provide an additional sense of perspective to the overall IA. All IA is driven by perspective and there is a great opportunity embedded in the BVI Model to ensure that perspective is clearly understood and purposefully decided upon. IA derives its power from providing evidence to decision makers. Without engaging in the process of understanding Context and then applying that Context to the Review and Respond stage of the Impact Assessment then it is highly possible that the IA results will remain partial, unusable or lacking in actionable meaning.

The middle three stages (Analysis and Design, Implementation, Outcomes and Results) are standard activities in almost any Impact Assessment – they are required to fulfil the BVI Model. It should also be noted that it would be entirely possible to ignore the first Context stage and jump straight to Analysis and Design. Where this happens then the BVI Model is set aside. However, there are many situations where Impact Assessment is an exercise of fulfilling a Government mandate, measuring a Key Performance Indicator or a simple evaluation. As such it is entirely sensible to just jump straight to the process in the gold sections.

MODEL OVERVIEW

The conception of Impact for this model is described as:
the measurable outcomes arising from the existence of a digital resource that demonstrate a change in the life or life opportunities of the community for which the resource is intended.

There are some core things that must be known before embarking upon an IA, this Model will help to answer these fundamental questions.

- Know what you want to assess.
- Know why you want to assess it.
- Know what you will do with the results of the assessment.
- Know how much it is worth for you to know this information.

The model takes place in five core functional stages:

1. Context
2. Analysis and Design
3. Implementation
4. Outcomes and Results
5. Review and Respond

At Stages 1 through 3 (Context, Analysis and Design, and Implementation) the outputs will be recorded or referenced in the Model Framework (see below). It is highly likely that for some of the activities that there will be too much information to contain within the Framework spreadsheet. This can be held as external reports referenced from within the Framework. These reports will also eventually go towards the final reporting of evidence as part of the supporting materials that will show the quality and veracity of the IA. All activity in the BVI Model will contribute towards the final narrative and no outputs from any activty will be wasted.

FIGURE 6: THE FRAMEWORK FOR THE BALANCED VALUE MODEL

DIGITAL RESOURCE:											
ECOSYSTEM:											
PERSPECTIVE	VALUE DRIVERS	OBJECTIVES	STAKEHOLDERS	ASSUMPTIONS	INDICATORS	METHODS	DATA COLLECTION	ACTION PLAN	TIMEFRAME	BUDGET	ROLES
SOCIAL											
ECONOMIC											
INNOVATION											
INTERNAL											

STAGE 1: CONTEXT COMPRISES 4 STEPS:

1. Ecosystem of the digital resource
2. Stakeholders
3. Balancing Perspectives
4. Value Drivers

STAGE 2: ANALYSIS AND DESIGN CONTAINS 5 COMPONENTS

- Situation Analysis
- Stakeholder Analysis
- Key Criteria
- Key Indicators
- Methods and Techniques

STAGE 3: IMPLEMENTATION CONTAINS 8 ELEMENTS:

- Complete the Framework
- Objectives
- Stakeholders
- Assumptions
- Indicators
- Methods & Data Collection
- Establish Plan
- Implement

STAGE 4: OUTCOMES AND RESULTS ARE EVALUATED THROUGH THE 4 PERSPECTIVES:

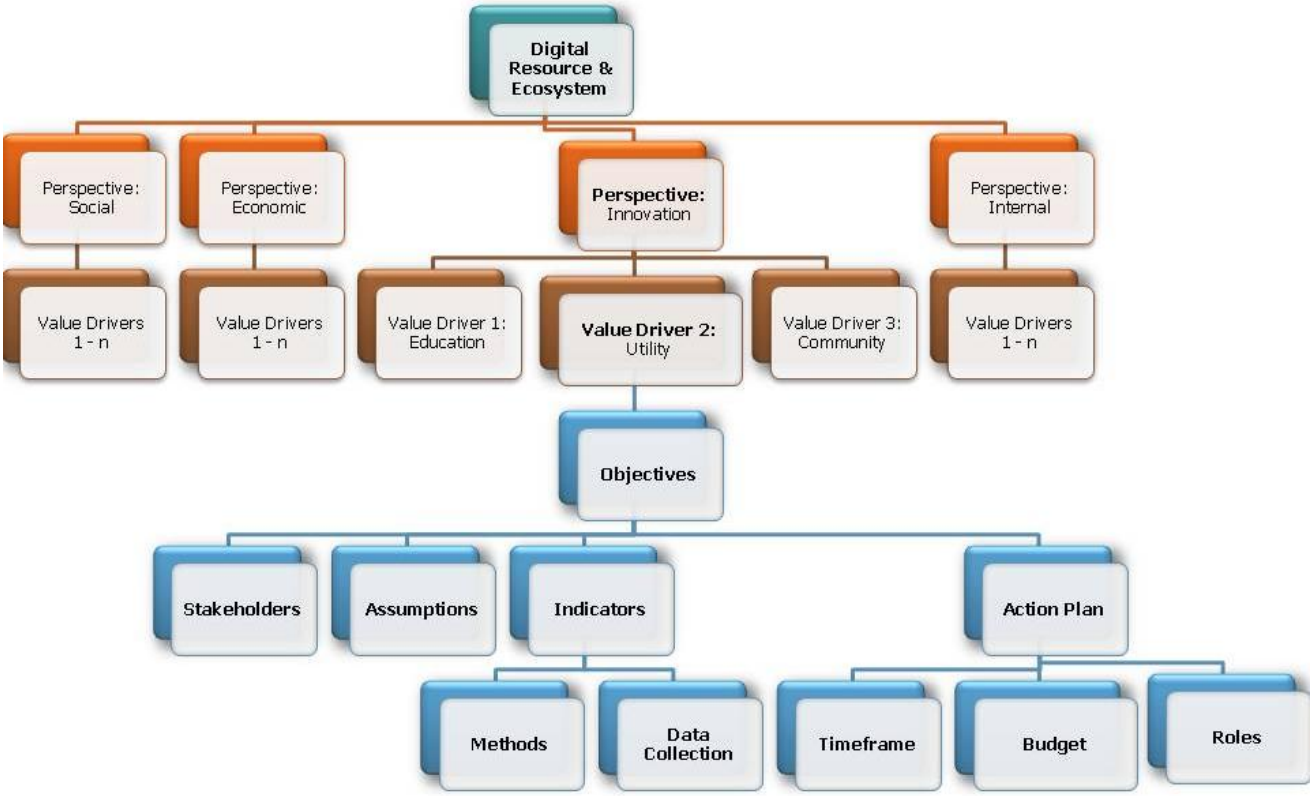
- Social and Audience Impacts
- Economic Impacts
- Innovation Impacts
- Internal Impacts

STAGE 5: REVIEW AND RESPOND ENABLES:

- Evidence-based reporting
- Enhanced indicators and key criteria in relation to stakeholders
- Revision of perspectives and Value Drivers for future assessments

FIGURE 7: THE ACTIVITIES FOR EACH STAGE OF THE BALANCED VALUE MODEL

FIGURE 8: THE FRAMEWORK AS A HIERARCHY FOR THE BALANCED VALUE MODEL



STAGE 1: CONTEXT

Context is made up of the following steps:

1. Defining the ecosystem of the digital resource
2. Understanding the stakeholders
3. Considering the Balancing Perspectives
4. Defining the appropriate Value Drivers for each Perspective.

It should be noted that steps in the Analysis and Design Stage may influence the Context Stage in an iterative fashion.

STEP 1: DEFINING THE ECOSYSTEM OF THE DIGITAL RESOURCE

An ecosystem is a set of interdependent relationships among the resources, technologies, organisation hosting, creators and consumers. These must be mapped and described to clearly enunciate the ecosystem of the digital resource.

The Framework has space to include a summary of the ecosystem of the digital resource. Within the Framework this is merely a reminder of key aspects of the ecosystem. Behind this must be a broader and deeper set of information to establish the baseline of the technology in question within the assessment.

Questions to be answered in establishing an ecosystem of the digital resource include:

- What is the digital resource or service/product to be the focus of the assessment?
    - What does the digital resource do, how does it behave?
    - What does the digital resource explicitly not do?
- Via what platforms (web, mobile, other) is the digital resource primarily experienced by the stakeholders?
- What types and extent of content does it carry? What is the lifecycle of the content contained, is it ephemeral, dynamic, static, etc.?
- What sort of underlying infrastructure and architectures is it operating within?
- How does this digital resource relate to other digital resources or services? What dependencies and technical connections are required to make the resource function?
- What are the minimum technical specifications required by the user to experience the digital resource as intended by its creators?
- Who hosts the digital resource? Is the organisation/service that hosts the resource the same as that which created it?
- Who are the expected users of the digital resource?
- Does the user have to pay/subscribe or otherwise trade (personal information, advertising, etc) to gain access to the resource?
- Are there any legal or legislative frameworks to be considered, including:
    - Intellectual Property Rights (IPR),
    - Digital Rights Management (DRM),
    - issues of managing personal data,

  - contractual constraints or obligations, and/or
  - legislative frameworks of differing geographic regions.
- How is the digital resource intended to sustain itself and grow in the future?
- What mechanisms and tools are available to view user behaviour for this digital resource? Is it feasible to add more tools should the IA suggest it for data collection?

In some cases this task will be very short and simple, but as the complexity of the ecosystem and its relationships to stakeholders grows, the task of describing it such that it aids decision making will grow more complex.

STEP 2: UNDERSTANDING THE STAKEHOLDERS

This step will establish as complete a categorised list of stakeholders as feasible. In the Analysis and Design stage we will engage in segmenting and analysing the stakeholders to identify different groupings we wish to investigate specifically in response to the needs of the IA. At this stage, we are concerned with ensuring a wide and comprehensive list of stakeholders types are identified and characterised.

In the context of the BVI Model a stakeholder is defined as:

> ***A person, group, community, or organization who affects or can be affected by the ecosystem of the digital resource to be assessed.***

Questions to be answered in establishing and identifying stakeholders include:

- Have all primary stakeholders been listed?
  - Primary stakeholders are those directly affected by the ecosystem of the digital resource.
  - The key attributes of these stakeholders might include them being: users, influencers, paymasters, funders, champions, vocal opponents, internal or external.
- Have all secondary stakeholders been listed?
  - Secondary stakeholders are those indirectly affected by the ecosystem of the digital resource.
  - The key attributes of these stakeholders might include them being: potential users, indirect influencers such as a context setting body (like a Government agency) or opinion leaders, potential supporters or opponents who are unaware of the resource at present.
- Have all potential supporters and opponents been identified?
- Have the interests of vulnerable or minority groups been identified? Many IA's neglect groups that do not match their core assumptions, these are often the vulnerable, disadvantaged or those from minorities. There is a moral and ethical imperative for including these groups. Also, challenging these assumptions and being sure to include these groups will benefit the assessment. When assessing social factors, it may prove easier to demonstrate a measurable benefit and change for these groups - but only if they are identified.
- What new primary or secondary stakeholders are likely to emerge as the IA progresses?

STEP 3: BALANCING PERSPECTIVES

IA never occurs within a vacuum and there will be pressures that are providing impetus for the investment of time and resources required to carry out such an activity. These will define many of the reasons why an organisation may wish to carry out an IA.

Considering these Balancing Perspectives for IA will ensure that the information and understanding gained in the process that will enable the organisation to respond to the various pressures represented by them.

The Framework within the BVI Model assumes that the following four values for the Balancing Perspectives will exist and that for each, one or more Value Drivers will be assigned.

- Social and Audience Impacts
  - the audience, the beneficial stakeholders and wider society have been affected and changed in a beneficial fashion.
- Economic Impacts
  - the activity is demonstrating economic benefits to the organisation or to society.
- Innovation Impacts
  - the digital resource is enabling innovation which is supporting the social and economic benefits accrued.
- Internal Process Impacts
  - the organisation creating/delivering the digital resources has been benefitted within its internal processes by the innovation demonstrated.

STEP 4: VALUE DRIVERS

Within the Framework, one or more Value Drivers will be assigned to each of the four Balancing Perspectives. We suggest that for each Balancing Perspective the organisation carrying out the Impact Assessment use the 5 Modes of Cultural Value as their Value Drivers and rank them 1-5. The first two or three priorities can then be chosen as useful values to explore for the Balancing Perspective.

The Value Drivers are:

- **Utility Value**
  - People value the utility afforded through use of the digital resources now or sometime in the future.
- **Existence and/or Prestige Value**
  - People derive value and benefit from knowing that a digital resource is cherished by persons living inside and outside their community. This value exists whether the resource is personally used or not.
- **Education Value**
  - People are aware that digital resources contribute to their own or to other people's sense of culture, education, knowledge and heritage and therefore value them.
- **Community Value**
  - People benefit from the experience of being part of a community that is afforded by the digital resource.
- **Inheritance / Bequest Value**
  - People derive benefit from the inheritance passed down to them and satisfaction from the fact that their descendants and other members of the community will in the future be able to enjoy a digital resource, if they so choose.

Other Value Drivers may be established by the organisation if desired, but these 5 Value Drivers should at least be addressed in full.

Therefore, in the example of a community museum with a strong social focus to the digital resource then the Framework for Social Impact might require an investigation of:

- Impact: Social + Value Drivers of:
  - Community
  - Existence
  - Education

Whereas a University with a digital collection relating to a famous historical figure may find that the Framework for Social Impact could require an investigation of:

- Impact: Social + Value Drivers of:
  - Education
  - Bequest
  - Prestige

Immediately, this reveals that the methods and indicators to be used for the social perspective for the IA would be quite different from each other in these examples.

STAGE 2: ANALYSIS & DESIGN

SITUATION ANALYSIS

In the BVI Model Framework, the objectives field for each aspect of the IA will need to be established. Situation Analysis along with the establishment of key criteria will assist in the defining of objectives within the Framework.

In this BVI Model a Situation refers to the context and environment of a digital resource at a specific point in time. It relates to information gathered about the ecosystem but with an additional process of analysis that defines and interprets the situation, its elements, and their relations at a given moment. This Stage should be used as an audit of current situations that will affect the IA.

A SWOT analysis is often conducted as a major part of a Situation Analysis. SWOT refers to strengths, weaknesses, opportunities and threats.

- **Strengths** are those attributes or activities related to the digital resource that you expect to do better than most in your environment. At this stage, build your selection of Strengths based on your sectors normal and expected requirements for "success". A short and non-exhaustive list of Strengths might include, for example:
    - A well established group of benefitting stakeholders,
    - An innovative mode of digital delivery,
    - A proven mechanism of delivering value to the core audience,
    - A sustainable business model already in place, or
    - A close linkage to existing strategies for digital preservation, internal mission, curatorial concerns, collection or product development, or educational perspectives for instance.

- **Weaknesses** are those attributes or activities related to the digital resource that could be improved to increase the probability of "success". At this stage you want to know what the predictable weaknesses are that you are already aware of that effect the probability of "success" for the digital resource. These may already be known if you are coming to the assessment some time after the resource has been established or they may be predictable in the context of an upcoming implementation. They may include such things as these exemplars:
    - Poor evidence gathering means that there is a lack of information to base decisions upon,
    - Lack of expertise identified in any critical area of endeavour,
    - Lack of clear strategy or clear linkage to other strategies in the organisation,
    - Out of touch with the benefitting stakeholders,
    - Not enough or inadequate marketing/advertising of the digital resource,
    - The digital delivery mechanism is uninspiring and/or lacking in technical innovation,
    - Inadequate infrastructure to deliver the resource into the expected user base in a satisfying way, for instance.

- **Opportunities** are likely to be an area of great interest for IA and are often likely to be the product of fundamental trends or conditions developing or appearing within the ecosystem for that digital resource. Two suggested activities to help with this process include maintaining a continuous review of the literature and benchmarking inside and outside your organisation to identify and evaluate potential opportunities.

- **Threats** are those attributes or activities related to the digital resource that are obstacles to trying to accomplish the goals for the resource. What will or is getting in the way of "success"? Threats differ from weaknesses as they may be beyond your ability to improve or change your resource to react to the threat. This may include such concepts as the advantage of being first in the market

with a product, the effect of disruptive new technologies or changes in government regulation. Recognition of real or perceived threats is helpful in developing situational analysis to enable planning and critical to avoiding surprises that hinder achievement of the IA.

Situation Awareness is helpful to conduct effective decision-making and planning activities and therefore starts to links the information from Context to the planning process. For instance, it can help to suggest how potential stakeholder behaviour might reveal the likely effect of different assumptions upon the IA.

STAKEHOLDER ANALYSIS

Within the Framework, each paired Perspective and Value Driver will need to have stakeholder groups assigned to it. Stakeholder analysis can contribute to the process of deciding how stakeholders will be involved or included in the IA process.

A stakeholder is: ***a person, group, community, or organization who affects or can be affected by the ecosystem of the digital resource to be assessed*****.**

Working from the list of stakeholders previously identified, in their primary and secondary groupings, now we seek to segment these into defined groups that can serve the IA purposes through Stakeholder Analysis. This can help to identify key stakeholders which have a significant influence, or are important to, the perceived success of the digital resource in relation to each of the paired Perspective and Values. Note that "important" in this sense refers to those stakeholders whose needs and interests are the priority of the digital resource – this might refer to direct users of the resource or direct beneficiaries of the use of the resource. These can also be referred to as beneficial stakeholders.

The vast majority of IA will not be able to canvass all possible stakeholders. An important step will be to identify or classify groups of stakeholders that can be considered representative of the wider community of stakeholders. Stakeholder-related risks have been identified to be significant influencers on the success, timeliness and cost of projects (Ruggie 2010). Further some methods and techniques for IA, such as the Triple Task Method, put the stakeholder at the centre of the process, allowing the stakeholder to define the values and indicators of success (Bell and Morse, 2008). Careful consideration of stakeholders at this stage is vitally important as this may influence every other element of design.

By considering the influence and importance of stakeholders they can thus be classified into different groups which will help identify assumptions in the IA and the risks which need to be managed through the IA design.

The kinds of broad groups that may be considered might include, for instance:

- **Consumers** – those who will use the resource regularly.
- **One Stop Consumers** – those who will use the resource only once or twice.
- **Partners and Collaborators** – those relationships required to deliver the digital resource.
- **Paymasters** – those who hold financial sway over the digital resource in one way or another.
- **Producers and Creatives** Creators? – those who contribute to the content for the digital resource.
- **Commentators** – those who will have opinions upon the digital resource which will set context for other stakeholders and possibly change opinions.
- **Marginalised** – whether part of primary or secondary stakeholders these groups are essential to specify as otherwise equality of opportunity to participate cannot be achieved. This grouping may include the impoverished, religious or racial minorities, women, or indigenous peoples as a few examples.

- **Leavers** – those no longer in touch with the digital resource who have previously used it.
- **Non-users** - those who have never used the digital resource.
- **Champions** – those who actively promote the digital resource and can affect the outcome of the IA.
- **Competitors** - competing products, persons leading competing activities

Allowing for the fact that some stakeholders may reasonably be assigned to more than one grouping, it would be sensible to continue sub-categorising stakeholders until they fall most clearly into one stakeholder grouping over the remaining possibilities.

The groupings above include those that are not users, those who were users and now have left the user group of the digital resource, plus the marginalized. Even though they may not be active users or may have only partial access to the resource they are important to consider and to include in IA. For the marginalized, engaging them is essential as otherwise the lack of recognition of their state removes them further from equality of participation. It is also possible the digital resource may effect a greater change in their lives than other groups. The Non-Users and Leavers should also not be forgotten, as much can be learned from the experience of primary stakeholders no longer using the digital resource (however negative the responses) and Non-users may just not know the resource exists or may value it even though they never use it. It is in these groups that the most significant change may possibly be mapped and they should not be ignored for convenience or cost.

Once decided, the categorised stakeholders (as many and with as much overlap as required) can be assigned against each of the Perspective and Value lines in the Framework.

Stakeholders remain useful not just within the data capture portion of an IA, but also at the latter stages of the IA, both when reflecting upon the outcomes and as potential points of dissemination for the results.

KEY CRITERIA

Criteria are a standard or a test against which a judgment or decision can be based. Establishing Key Criteria, and Indicators that demonstrate those criteria, will inform the Objectives section of the Framework.

Criteria need to be clear and possible to measure. For example, the Imperial War Museum uses these impact assessment criteria in their Equality Strategy 2007 - 2010:

> *For each of the key functions and policies, the Museum will consider the impact of current policies and procedures associated with equality of opportunity. For each policy the following criteria will be applied:*
>
> - *Is there any evidence of higher or lower participation of different groups?*
> - *Is there any evidence that different groups have different needs, experiences or issues?*
> - *Is there an opportunity to promote equality of opportunity or better community relations by altering the policy or working in partnership with others?*
> - *Have consultations with relevant groups or individuals indicated that particular policies create problems which are specific to them?*
>
> (Imperial War Museum, 2011)

It may well be that Key Criteria will map directly to the IA from an organisation's mission, a projects purpose, the digital resource's raison d'être, or will be defined partly in Key Performance Indicators or other metrics already in place.

Key Criteria thus links directly from the Perspectives and Values in the Context stage to the Objectives field in Framework. Each Perspective within the Framework has an Objective established for the IA to measure.

AN EXAMPLE

For instance, if the Education Value is deemed a significant Value Driver then this could be set as a key criterion for measurement. For example, an Objective then may be phrased as:

> *A measure of the change in the community of scholars self-identifying as Digital Humanists and any correlation to key digital resources they consider influential in that decision to be a Digital Humanist.*

Key Criteria as a principle or standard by which something may be judged or decided within the IA will be enacted through a method of assessment, assigned key indicators and data gathering techniques in the Framework.

KEY INDICATORS

An indicator is merely "a piece of information that indicates something useful to you" (Markless & Streatfield, 2006). There are thus a wide number of possible indicators that could be used within an IA and the term is often bandied about in IA with such abandon as to become meaningless or devalued. The essential thing to bear in mind in the selection and use of indicators is that they are a measure of tendency in certain conditions, a measure of a state of being and never an absolute value. Thus indicators are clues to answering the questions posited by your IA.

Our workshop participants (see Appendix B) were particularly incisive upon the pros and cons of indicators. They stated that indicators are never absolute measures and they may not always be based on a shared and common understanding of what an indicator should measure and for which stakeholders. However, significance can be assigned if the indictor is clear enough. For instance, using street noise as an example – if a source of noise is measured over time and continually exceeds the legal limits then this would be a significant indicator of negative noise impact.

The workshop experts warned against the problems of using indicators poorly. Poor uses included assuming that an indicator that works well in one circumstance might be meaningful in a different environment. The temptation to stretch indicators to fit different situations rather than carry out the research thoroughly in each is a particular failing. For example, measuring children's satisfaction with a digital resource in a rural school classroom is unlikely to be an adequate indicator of children's satisfaction at home or in different regions. It may have value, but more likely the indicator is not so easily transferable.

IMPACT INDICATORS FOR THE DIGITAL DOMAIN

The digital domain can be a challenging area in which to find suitable indicators that will work as a method of IA to provide answers to the Key Criteria. There can be a lack of effective baselines or the data may not have a long enough history to be meaningful. Our workshop experts stated, wherever possible, a preference for choosing a data source that already exists and is credible, as creating a new one is difficult and problematic. However, where they are not available (as they frequently will not be), then in considering Indicators we may have to identify some baselines by considering how the current state of the ecosystem

for the digital resource works and what kinds of interventions will have an influence or effect change in that state?

For instance, a current state of a museum collections dataset may be that it is accessible through Web interfaces (possibly providing a measurable baseline of expectation, experience and user data) and the intervention that may be measured could be the introduction of a mobile platform which will change that status quo. From such a baseline then the indicators will be a comparison of the prior state in terms of qualitative measures (satisfaction, knowledge) and quantitative measures (numbers of users, reach of the resource) with the new state.

SMART INDICATORS

All indicators should adhere to the following SMART criteria: Specific, Measurable, Attainable, Relevant and Timebound. An indicator must be directly linked to what you are trying to achieve. This may seem obvious, but this aspect is why the Context stages matter so much in the BVI Model. Without clearly articulated perspectives, values and criteria, indicators will be very hard to choose and evaluate.

Things to consider in establishing good indicators:

- Focus the indicators on measuring change.
- Choose as few indicators as possible. Preferably for the BVI Model Framework, no more than one per Perspective/Value Driver pairing if possible.
- What is the common measure (or commensurability) between the indicator you are measuring and the thing you want to measure? How are they linked and what will the measure tell you?
- Establish SMART Indicators considering whether:
    - the data is available,
    - the source of the data is credible,
    - large enough, and
    - possible to gather in a suitable timeframe.
- Test the indicator – consider the question: if all these things were true would you be satisfied that the measure has been achieved?
- Create a shared understanding of an indicator and what it is for and what it will measure. If you cannot share and gain acceptance of the meaningfulness of the indicator with stakeholders or with decision makers, then the results will not be trusted.
- Spend the time and resources on research to demonstrate that an indicator will generate a helpful sense of the tendency for causality between action and effect. It is tempting to assume causality will exist in all other areas that are merely similar to that first indicator.
- What are the unique aspects of the things you want to measure, as these will not be shared values with other things that might be making an impact – so measure the unique values in digital resources to make for a good indicator.

POOR INDICATORS CORRUPT IA

Evaluating the Impact of Your Library (Markless & Streatfield, 2006) is highly recommended for its coverage of establishing indicators (a new edition is due in 2013). In particular, they comment upon what makes a poor indicator, suggesting that indicators may fail to do their task if they are:

- *Corruptible – easily used to create a false impression.*

- *Corrupting – provide an incentive to do disruptive or counter-productive actions.*
- *Inflexible and unable to reflect diversity and change in your services.*
  (Markless & Streatfield, 2006)

In short, indicators are the critical part of the IA, where you will decide if what you are doing is a true assessment, where the data gathered from the indicators could show negative as well as positive impacts, or if this is evaluation for the purposes of marketing and promotion. If the latter, then IA is not going to deliver the desired results, as the mere attempt to pre-empt the outcomes will fatally corrupt the assessment process.

A BRIEF LIST OF POSSIBLE INDICATORS

The following list is just a suggestion of possible indicators and is not in any way a complete and definitive list of the possible things that may make interesting or useful indicators. It is derived from several years of Digital Futures Academy content (www.kdcs.kcl.ac.uk/digifutures/overview.html) and from a list of popular indicators found in the Impact Evaluation of Museums, Archives and Libraries: Available Evidence Project report (Wavell et al, 2002).

Please remember that the number of indicators chosen should be as few as possible to facilitate the IA.

- How large is the group of active users of your resource?
- What kind of people make up the active users of your resource?
- Where are your active users and/or stakeholders located?
- What times of day do your active users utilise your resource?
- How do your stakeholders spend their time? How much of their time is spent being part of your group of active users of your resource?
- What type of content interests your stakeholders most and least?
- What is preventing people from being part of your group of active users?
- What is the level of engagement in your stakeholders possibly measured through length of time engaging, or the conversations held (particularly in social media)?
- What is the level of enjoyment, enthusiasm or motivation in the stakeholders?
- Does the resource enrich school curricula or learning environments?
- Are stakeholders stimulated to learn more? Possibly indicated by return visits, recommendations to others or uptake of activities or courses etc.
- Can the level, depth and breadth of subject knowledge by measured? Possible indicators might be ability to recollect memorable facts or by using methods to test their knowledge prior to and post experience.
- Have the stakeholders acquired new or improved skills?
- What change is measurable in the stakeholders' sense of: self-confidence, self-esteem, community or attitudes? This mght also include:
  - Social cohesion;
  - Community empowerment;
  - Local culture and identity;
  - Imagination and creativity;
  - Health and well-being.

- What measurable changes are found within the organisation? Including:
  - Staff attitudes
  - Quality of decision making
  - Efficiency and effectiveness changes
  - Economic measures of Return on Investment or cost benefit
  - Ability to innovate and respond to change
- What indicators of economic change can be measured? Including both direct and indirect measures:
  - Income
  - Size of audience
  - Capital funds
  - Employment - FTE, wages and salary payments
  - Contribution to Gross Domestic Product
  - Supplier and induced effects, using economic multipliers – for instance the incomes and jobs resulting from active users of the resource in local businesses.
  - Tourist spending levels - the spending by the stakeholders in the local economy
  - Users' willingness to pay for services.
  - The value of the active users time in travelling to a physical service point and in actually using a digital resource.
  - *Return on Investment*
  - *Cost versus benefits*

METHODS AND TECHNIQUES

Establishing an indicator will naturally lead to consideration of methods and techniques by which to gather data. This report details a large number of possible methods of Impact Assessment (see Appendix D). This guide is intended to help users of the BVI Model to find the most appropriate method or technique for their objectives and criteria. One of the most difficult aspects of IA is how to select from such a large number of options.

An immediate consideration will be the choice between qualitative and quantitative methods. Many methods will include an element of both but will have a strong tendency in one direction or the other. Quantitative measures are popular with governmental bodies because they provide statistical data and can potentially (assuming a rigorous method) provide an element of comparison across domains, sectors or over long time periods. Quantitative measures are also particularly the province of the digital domain as digital resources are apt for such numeric measurement with user numbers, amount of time spent and other statistical data more easily gathered through the web-based statistical methods (Webometrics) available.

The core disadvantage of quantitative methods is that they are somewhat cold, lacking the means to establish the change that is occurring in the lives of the stakeholders assessed, or to explain why this change is happening. Quantitative methods often answers the "what", "where" or "who" queries adequately but tends to miss out on the "why" or "how" questions. Qualitative methods add the element of providing evidence with greater colour and depth regarding the investigation of people's motivations,

behaviours and desires. However, qualitative methods have to be selected carefully to ensure rigor in the data gathering, analysis and evaluation of outcomes to demonstrate real change rather than a series of anecdotal evidences that do not in themselves provide anything more substantial than a handy soundbite.

The following are attributes of a method or technique that should be foremost considerations in helping to choose the most appropriate method:

- Is the information you need already available?
- Is the method feasible to implement?
- Cost - how much is it worth to you to know the information you might gather?
- In what timeframe will the method allow for results to become available? What is the time taken to gather data?
- Validity of the likely results – what will be their significance and value?
- Are the methods of data gathering going to deliver good, reliable, usable data?
- What skills are required to implement the method - who will do the research?
- What is the level of complexity of data analysis and the time it will take for analysis?
- What is the availability of respondents (presumes knowledge of likely audience)?
- What is the likelihood of gaining a good proportion of responses from audience?

TOOLKITS, EXEMPLARS AND GUIDES

Please see Appendix D: Methods and Data Gathering Techniques for an indicative guide to relevant methods and techniques that could be used within the BVI Model. Obviously no list can be comprehensive, but it is hoped this list, with a description and references will be helpful in finding a good method.

There are also the following Toolkits and Guides available that are essential points of reference:

- The report and toolkits from the Culture24 Action Research Project *Let's Get Real* which includes:
    - an extremely helpful insight into the way cultural organisations go about trying to measure the success of their business online and focuses on tools such as Google Analytics, Hitwise, Klout and Twitterific with consideration of Facebook, Twitter and YouTube amongst other social media opportunities;
    - a social media metrics toolkit - a framework suggesting ways to make use of your social media metrics; and
    - a social media tools comparison A comparison of the tools identified during the project that can be used to track diffident different social media channels.

  (http://weareculture24.org.uk/projects/action-research/how-to-evaluate-success-online/)

- The *Toolkit for the Impact of Digitized Scholarly Resources (TIDSR)*. This toolkit was used extensively to populate the list of methods in Appendix D. The Toolkit has the following stated purpose and likely audience:
    - *The toolkit was originally developed in order to present a framework and best practices in measuring usage and impact of digitized scholarly resources. We envisaged that the toolkit would be useful to:*
        - *content creators and publishers*
        - *Information professionals and content managers in charge of maintaining and developing digital collections*

- *librarians, archivists and institutional staff involved in digitization efforts*
- *representatives of funding and evaluation bodies*

(http://microsites.oii.ox.ac.uk/tidsr/welcome)

- The Economic Impact Toolkit for Archives and Museums launched by Archives, Libraries and Museums Alliance UK:
  - *The toolkit consists of a series of calculations based on data provided by organisations to generate details of the impact of the organisation on the local economy, which are expressed:*
    - *Financially (based on additional expenditure generated by an organisation's operation);*
    - *In terms of employment (looking at your organisation's employment levels in addition to the employment generated through procurement and visitor related expenditure)*
    - *By Gross Value Added (used to measure the contribution to the economy (informs the calculation of Gross Domestic Product (GDP).*

(http://almauk.org/working-together/our_activity/economic-impacts/)

- The UK Arts Council provides guidance in *Measuring the economic benefits of arts and culture* (http://www.artscouncil.org.uk/media/uploads/pdf/Final_economic_benefits_of_arts.pdf)

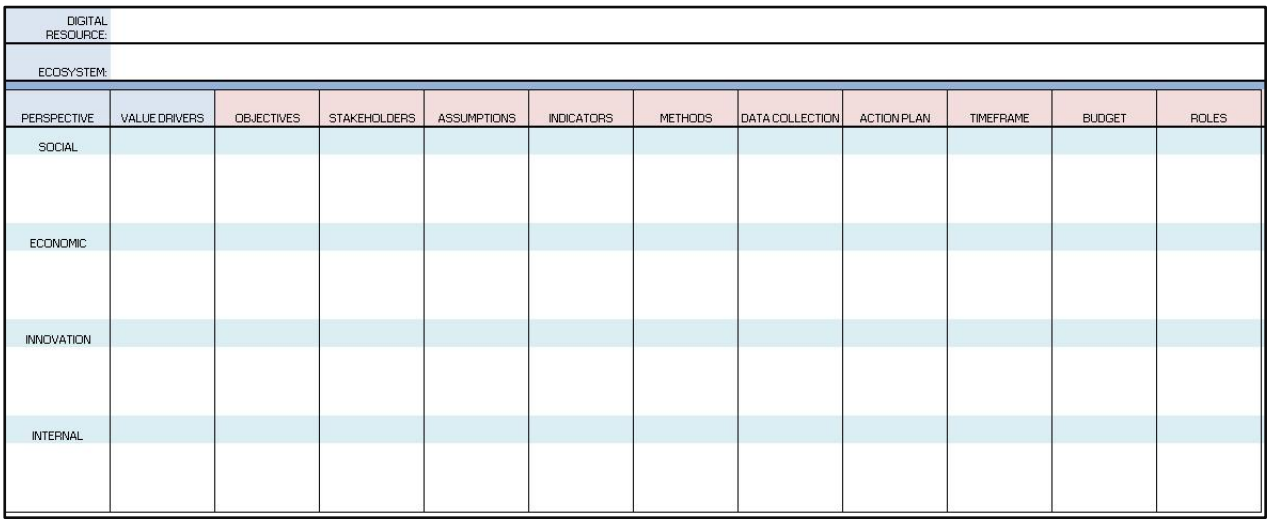
- The British Library carried out a significant economic value IA and the methods are discussed with the final report here: (http://www.bl.uk/aboutus/stratpolprog/increasingvalue/publicvalue/confpres/pungelwesmarks.pdf) and (http://www.bl.uk/pdf/measuring.pdf)

- The European Commission has best practice guidance on their IA approaches. (http://ec.europa.eu/governance/impact/commission_guidelines/best_pract_lib_en.htm)

- The UK Government Department for Business, Innovation and Skills has detailed guidance on IA (mainly economic in nature) including a toolkit. (http://www.bis.gov.uk/policies/bre/assessing-impact)

STAGE 3: IMPLEMENTATION

The previous stages will have provided a deep understanding of the core aspects of the IA to be carried out. These can now be placed into the Framework so that the implementation is well planned and the aspects mapped clearly. Many aspects of the IA plan will be more extensive than can easily be fitted into the Framework spreadsheet, therefore some will be noted in brief in the Framework with a reference to the fuller details in external documentation.



DIGITAL RESOURCE:											
ECOSYSTEM:											
PERSPECTIVE	VALUE DRIVERS	OBJECTIVES	STAKEHOLDERS	ASSUMPTIONS	INDICATORS	METHODS	DATA COLLECTION	ACTION PLAN	TIMEFRAME	BUDGET	ROLES
SOCIAL											
ECONOMIC											
INNOVATION											
INTERNAL											

COMPLETING THE MODEL FRAMEWORK

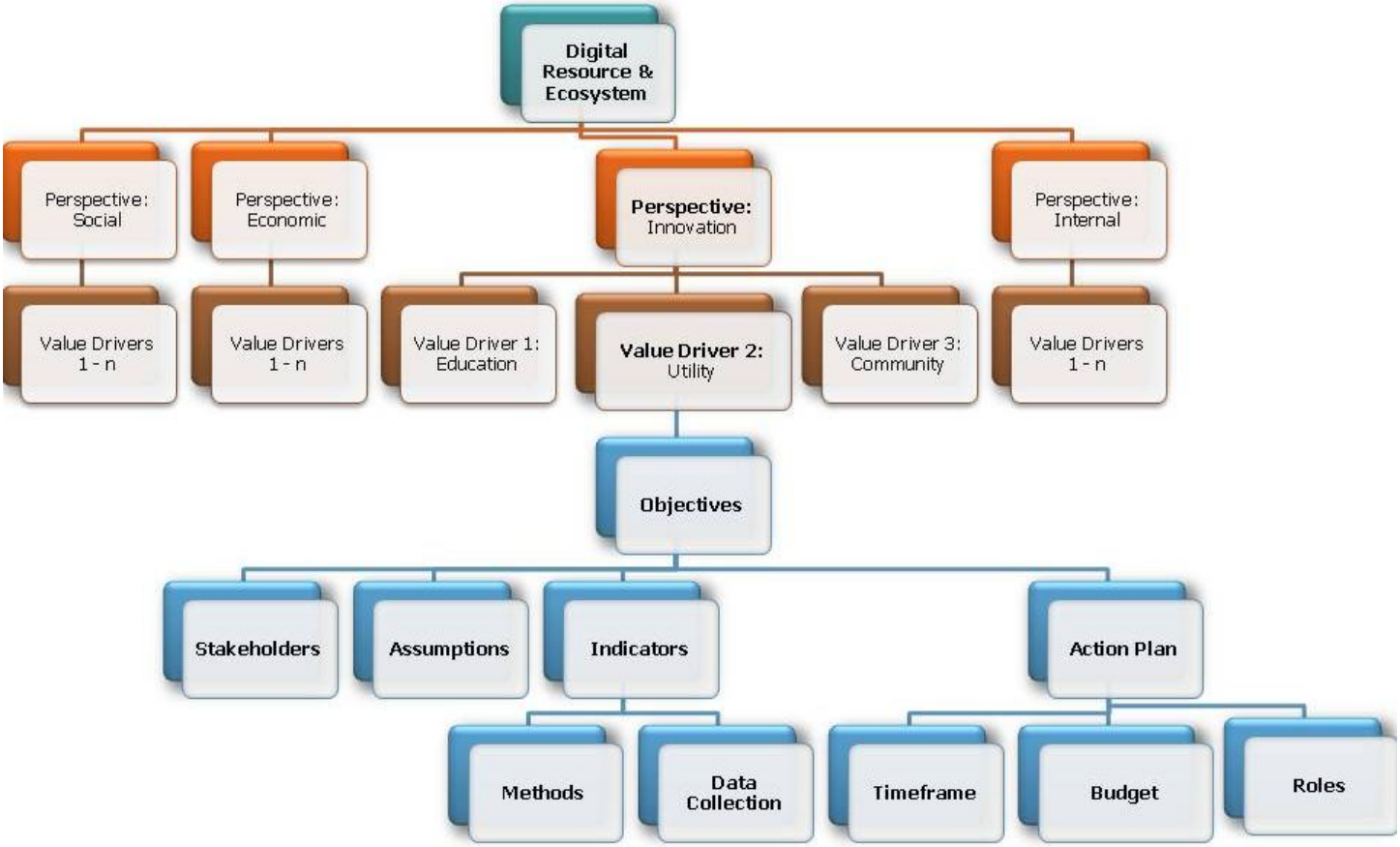
The Model framework assumes the following sections to be completed:

1. Digital Resource
2. Ecosystem
3. Perspective
    a. Social
    b. Economic
    c. Innovation
    d. Internal
4. Value Drivers
5. Objectives
6. Stakeholders
7. Assumptions
8. Indicators
    a. Methods
    b. Data Collection
9. Action Plan
    a. Timeframe
    b. Budget
    c. Roles

The hierarchy implicit in the Model Framework therefore is represented in this diagram, with the hierarchy of one Perspective is shown in bold to show how the Framework may be completed.

The BVI Model Framework as visualised in this hierarchy allows a set of IA actions to be recorded to enable each aspect of the IA to be planned and completed. The Model Framework allows for all elements to be held in one place and for the dependencies between elements to be seen and accounted for. Please note that it may be perfectly possible and reasonable for actions (such as methods, data collection or roles, for instance) to be duplicated and repeat across various elements of the Model Framework.

FIGURE 9: THE MODEL FRAMEWORK AS VISUALISED AS A HIERARCHY



n = a number

The Digital Resource and its ecosystem with the Perspectives will be completed directly from Stage 1: Context. Then for each Perspective a number of Value Drivers may be set (usually there will be between 1 and 3 of these). The selection of the Value Drivers will also have been decided in the Context stage. Stage 2: Analysis and Design will provide the information for the remainder of the Model Framework.

For each Value Driver a separate Objective is set. This Objective will be fulfilled through the assessment of a set group of Stakeholders specific to that Objective. Any assumptions that are being made which will affect the IA will be recorded. The Indicators that will measure the change which the Objective seeks to explore will be defined. For each Indicator, a suitable method of investigation is defined with its means of data collection also clearly described. For each Objective an Action Plan can then be described including the timescale for completion, the Responsibilities that are governing the IA plan and the specific Roles of those who will be carrying out major aspects of the IA.

SETTING THE OBJECTIVES

An Objective within the Model Framework is an IA outcome that can be reasonably achieved within a desired timeframe and with the available resources. The Objectives will be derived from a combination of factors explored in Stage 2 including the Key Criteria, the Situation Analysis and the Indicators.

Objectives should be expressible in a short pithy statement that expresses what is to be measured and what the outcome would encompass. They will be specific to the Perspective/Value pairing and measurable through the Indicators and Methods selected in Stage 2.

Thus, the Objectives for differing Perspective/Value pairings would provide different outcomes to be measured and the Objectives need to reflect this. As shown in this brief example:

> **Digital Resource:** National digitized newspaper resource
> **Ecosystem:** Web-based, free at point of use, full text newspaper resource
>
> **Perspective:** Social
> **Value Driver:** Community
> **Objective:** To measure whether use of the newspaper resource in local communities (such as public libraries, clubs and schools/colleges) fosters a sense of place and a sense of community cohesion and understanding.
>
> **Perspective:** Economic
> **Value Driver:** Education
> **Objective:** To measure the educational benefits that have (or will be) accrued through the use of the newspaper resource and to monetise those benefits in comparison to other potential methods of achieving the same outcome to demonstrate the Return on Investment.

As can be seen, both of these objectives will suggest slightly different modes of exploration in the method of data collection and the stakeholders investigated (although a survey may possibly encompass both). Most importantly, the analysis of the resultant data that is collected will be very different. Objectives are thus vital to ensure the focus remains upon measuring outcomes not mere outputs.

STAKEHOLDERS

Stakeholders have been extensively investigated in Stages 1 and 2 so a strong understanding of the stakeholder groups open for investigation should already be known. As each Objective is set then the appropriate stakeholder group(s) can be assigned to that specific Objective. This should be a fairly straightforward process by this point, but it remains a vital ingredient to ensure the IA produces measurable and meaningful results. Stakeholders are the only group who can transform our understanding of an output into a significant outcome and so investigating change in the most appropriate, representative group for the outcome explored is critical to success.

ASSUMPTIONS

All Impact Assessments have to accept that they cannot measure everything, for all time, in every way possible. As such there are areas that are deliberately not investigated, or there are assumptions made that certain conditions, skills or resources are already in place. For instance, in the examples of Objectives given above, the assumptions might include: the access to an internet-enabled computer; participation in community activities; or the availability of the public library in the locality.

The listing of assumptions is helpful in ensuring the IA is not corrupted from the beginning by an unseen bias or assumption ("everyone has a mobile phone these days") which might either exclude stakeholders or skew the measurement without accounting for it in design of the data collection or the subsequent analysis.

Considering assumptions can sometimes reveal a mode of investigation not previously considered but which might show a larger change than measuring the mainstream. For instance, assuming all users are able to read English, excludes not just the non-English readers but possibly those with a learning disability. Yet it is possible that both these groups may benefit in ways that can be measurably larger than the mainstream in certain circumstances. So listing assumptions both protects the IA process and opens up opportunities if viewed from the appropriate perspective.

INDICATORS, METHODS AND DATA COLLECTION

The Indicators, Method and Data Collection elements of the Model Framework for each Perspective/Value pairing will be completed from the decisions made in Stage 2. As stated previously, the Indicators should be specific to the Objectives and there should be as few Indicators as practicable to demonstrate the change to be investigated in the Objective. Indicators must be SMART and thus the Methods to support them become easier to define and design.

Despite the many methods listed in Appendix D, most IA Methods will fall into a few basic categories of data collection from stakeholders: surveys, questionnaires, observation, focus groups, feedback and participatory investigations. The focus of the BVI Model upon digital resources also provides some advantages not necessarily available to other Impact Assessments, most notably the opportunity to reach out digitally to the user base through the digital resource itself or to use Web metrics or Social Media measures to assess change in usage patterns in response to interventions.

ACTION PLAN

Every IA will become a project management exercise at the point of implementation, with a set amount of resource to be expended over a set amount of time to achieve a desired outcome. These factors must be recorded in the Model Framework, with particular emphasis upon clarity of timeframe, budget and the roles of the project team carrying out the IA.

It is not my intent to teach project management at this point, so I will not detail how to draw up a detailed project management plan for IA – all the elements have already been enunciated previously. But some commentary upon timeframe, budget and roles might be helpful.

TIMEFRAME

It is likely that the timeframe for measuring the changes resulting from a digital resource may differ widely depending upon the Objective to be assessed. Some measures might be put in place immediately to measure activity continuously but not report final outputs for months or even years later. Other measures may be done at specific moments to capture instant snapshots of results. As such, recording the timeframe for measurement will be helpful in assigning resources and understanding at what point data outputs will be analysed. It will also identify possible conflicts or unreasonable expectations, such as asking the same stakeholder group to attend separate focus groups in the same week or setting a continuous measure that only reports after the point at which the resulting data can be used to demonstrate Impact to a decision maker.

BUDGET

Recording in the Model Framework a basic record of the budget assigned to each Objective/Indicator will help to provide a faceted view of the various measures. This could be used to reassess the value of knowing the data collected in relation to the Indicator, if it is disproportionate to the value of the outcome measured. Combined with assessing the action plan and timeframe, it may be possible to parcel certain types of data collection into more efficient packages.

ROLES

Every IA must have the roles of those carrying out activities within it clearly defined. Apart from just being good project management, it is important for several other reasons. Defining roles allows for consideration of the skills and time available to carry out the IA from internal staffing and thus to assist decisions on whether the IA should done in-house or using external contractors. Analysis of the data gathered will require some skilled statistical working and this may not be in the local skill set. It also ensures some reflection upon the roles in the IA and the relationship with stakeholders – some people may be better placed to gather data than others.

IMPLEMENTATION

Having completed the Model Framework and drawn up an Action Plan now is the time to finally implement that plan and gather the data which will underpin the whole Impact Assessment.

Some things to consider in the implementation stages:

- **How will you take account of technology change?** In assessing a digital resource there will inevitably be changes in the ecosystem in which the resource exists or in the basic technical tools people use to access information. You may need to consider how useful the IA results will be if you set out measuring use on one platform and then find users have migrated elsewhere in the meantime. Of course, some IA will be focussed on the effect of technological change itself. To design data gathering and/or indicators to be independent of underlying technologies then it is necessary to focus upon more fundamental aspects of the life changes and opportunities being explored in the IA that can thus rise above the underlying platform being used.
- **Who can help you to collect evidence and data?** There may be opportunities to work with others, for instance: project partners (to scrape data from their systems), with volunteers (to hand out surveys), developers (to code data gathering into resources), funders and sector context setters (to promote/champion), government agencies (may help if keen on seeing your results) amongst others.
- **Maybe you should outsource parts or all of the IA?** Consider your internal skills, available resources, time and capabilities and assess whether all or parts of the IA could be outsourced or at least attached to a specifically appointed person. Data gathering, in particular, is something that can potentially be done outsourced to external vendors.
- **How will you gather data in busy environments or within the busy schedules of stakeholders**? Consider how your method of data capture will work in the organisation or for the subject of investigation. Also think carefully about this if doing observation-based studies.
- **Consider the ethics of your data gathering and investigation**. Any type of data gathering that will involve people, especially personal data, is going to be subject to regulations on what can and

cannot be kept for the purposes of the IA. Digital information must be secured, protected and access to data limited. Considerations of informed consent and the maintenance of anonymity and confidentiality are essential to protect the participants and the IA from significant ethical hiccups. If children are involved in the IA then you will almost certainly have to gain parental consent, with all the frustrations this will incur.

- **Consider your stakeholders needs.** If you can align your data collection to something the stakeholders already want or would find rewarding then so much the better. Also, remember that stakeholders should be given an active role in social-based IA to define what factors constitute success in measuring change.
- **Who will manage all the data that is gathered?** You need an effective means by which data that is gathered will be fed back to a central resource or person who will be responsible for collating and keeping it safe (and secure as mentioned above). As you may be gathering data over variable time periods and possibly even over years this becomes as much a digital asset management and preservation task as an analysis task. Therefore, adopt a "many contributors, one manager" approach to managing the data.
- **Check your protocols.** If you work in Higher Education, for a governmental, public sector agency or similar, there are probably protocols already in place to check and work to.
- **Do not jump to conclusions but do review and respond.** Just because a particular set of data is coming in does not mean it will continue to show those results in the future – early high usage of a resource cannot be taken as a given in the future, nor can a low response rate. Therefore, review your data regularly to ensure that it is providing the type of data to the standard you are expecting. But only modify if the data gathered is clearly not going to indicate the criteria of your objectives or is corrupted by some factor previously unseen.

STAGE 4: OUTCOMES AND RESULTS ARE EVALUATED THROUGH THE 4 PERSPECTIVES

One key attribute of the BVI Model is the attempt to focus upon measuring changes in people's lives and life opportunities. Further, the Model reflects the need for IA to observe and assess outcomes not mere outputs. As reported by Paola Marchionni at JISC in 2009:

> *Millions of pounds of public funding have been spent in digitization so far. However, this is still, on the whole, an activity which only pays partial attention to the users for whom the content is being digitized, and their relevant needs.* (Marchionni, 2009)

This expresses the findings of other reports which show that previous attempts at evaluation of digitized resources has focussed upon outputs, such as number-crunching visitor numbers, without much segmentation and analysis, or the use of anecdotal or survey evidence to try to find out about value and benefits (Tanner & Deegan, 2011).

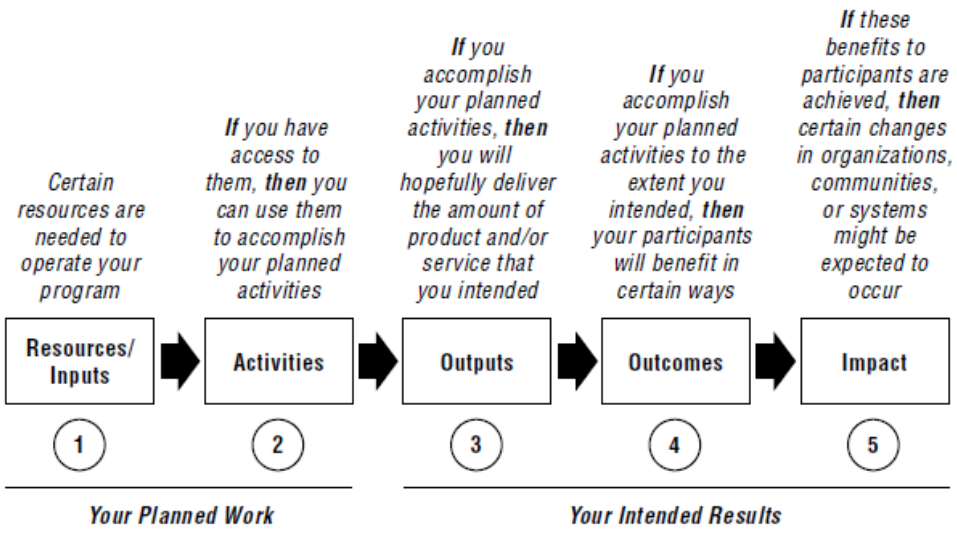
Therefore this Stage will focus on the means of transferring the outputs of data gathering into outcomes that are meaningful demonstrators of impact to be used effectively by decision makers.

MOVING FROM OUTPUTS TO OUTCOMES AND IMPACTS

Outputs are the direct products of the digital resource being measured with the IA. They consist of data, both in statistical quantitative form and qualitative evidence modes. Outputs therefore often talk to performance measures or monitoring information. A measure of how many items were digitized to populate the resource in relation to the expected number predicted in the project plan would be an example of a performance measure. Alternatively, the number of online users for a web-based resource over a period of time is monitoring activity. Neither of these are outcomes until evaluated in such a way as to show the specific changes that have occurred.

The W.K. Kellogg Foundation Logic Model Development Guide provides a nice overview of the transition from data gathering, through outputs to outcomes and impact (W.K Kellogg Foundation, 2001).

FIGURE 10: THE KELLOG FOUNDATION LOGIC MODEL



Outcomes are the specific changes and consequences evaluated for things such as behaviours, knowledge, skills, status, wealth, wellbeing, or effectiveness to mention a few instances.

Impacts are the fundamental changes that can be assessed or occur because the outcomes demonstrate a set of benefits to the defined group in a certain timeframe. Such benefits can be intended or unintended and, most importantly, may be either positive or negative to some or all of the stakeholders.

Outcomes must also be adjusted to account for changes that would have occurred anyway without the intervention of the digital resource. This is the essence of impact: identifying the change that can be causally linked to the intervention in people's live represented by the digital resource (Boyd, 2004).

The inherent risk in finding undesired impacts or of not having changed things significantly is one of the core reasons I posit for IA not being done as frequently or as effectively in the cultural, heritage, academic or creative industries - especially as there is an extremely strong presumption that all things digital will be positive in performance and therefore impact.

Reflecting on this transition, Kevin Dolby of The Wellcome Trust, stated during our Experts Workshop that they find that medical research papers can easily appear 7 or more years after funding. The Office of Health Economic report *Medical Research: What's it worth?* (2008), notes the time lag between research funding and clinical impact as 17 years (range 10-25). In other words, the time from a research output (a peer-reviewed journal article) to transition into an outcome (use in clinical practice) and then have an impact (notable change in people's lives) is on average 17 years.

The lesson here is that in assessing the outputs and outcomes from the BVI Model IA we should not be terribly surprised if the Impacts are not turning up immediately, even for digital resources. What the timeframe will be is not easily predicted as there are too many variables, but I suggest impact is unlikely to be measurable with its fullest significance in affecting people's lives in timeframes of a few days or months. This is one reason the BVI Model has 4 perspectives so that Impacts which happen within different timeframes can be pulled to the fore as those Impacts accrue.

EVALUATING OUTPUTS

Evaluating the outputs to find the clear outcomes and then engaging with the impacts which emerge can only really be achieved with a thorough in-depth knowledge of the data that has been gathered. There are a number of software applications out there that will help to summarise data and produce graphics,

Analysis of statistically-based quantitative data should be relatively straightforward in terms of organising the data into spreadsheets and tables that can create tangible numeric measures of change. Finding causal links between outputs and outcomes in statistical data can be difficult though unless the Objectives and Indicators have been selected carefully in the earlier Stages. If necessary, data can be analysed with standard commercial packages such as the SPSS (www-01.ibm.com/software/analytics/spss/) or the free Open Source PSPP (which appears very similar with most, but not all, of the same functionality) (www.gnu.org/software/pspp/). Both of these applications can be complex to use due to their high levels of functionality. They can possibly lead to misleading results in the hands of the inexperienced - the tool is only as skilled as the operator and statistical skills are desirable in using these to analyse outputs. The UCLA Academic Technology Services provide an excellent introduction to SPSS (www.ats.ucla.edu/stat/spss/). One other main advantage of using SPSS is that many social science data sets come either in SPSS form or with an easy method to translate them into SPSS thus significantly reducing the preparation effort needed to use data from other sources.

Qualitative outputs can be harder to analyse than quantitative ones, but the results are likely "to give you subtle and nuanced evidence as well as powerful testimony in key areas" (Markless and Streatfield, 2006). Combining quantitative and qualitative evidence together will offer very powerful statements as it provides a numeric statement supported directly by a personalised, possibly narrative evidence-base.

There is no fast way to analyse qualitative data. The task is to make sense from the data gathered, to reduce to a manageable form the information so as to identify significant patterns. There is a well defined

process, known as grounded theory (Charmaz, 2006), of coding and indexing the data so it becomes manageable and can be put into categories. This allows for comparisons, integration, inference and the challenging of assumptions to enable a clear interpretation. The sorts of patterns that are most helpful to find are causal links (Khalili, 2011). These generally fall into three types:

- Self-assigned causality (i.e. the stakeholder data gathered identifies they did *X* because of *Y*)
- Observed causality (i.e. the data gathered in an observational mode shows that *Y* is a direct result of *X* happening)
- Indicated causality (i.e. the research and best judgement of the data indicates that if *X* happens then it is likely that *Y* will also happen)

THE 4 PERSPECTIVES OF THE BALANCED VALUE MODEL

As all IA is driven by perspective, there is a great opportunity embedded in the BVI Model to ensure that perspective is clearly understood and purposefully used to enable good reporting of the results to enable decision making. One purpose of IA is to provide evidence to decision makers. Providing clarity in the presentation of evidence and a faceted view of the impacts achieved will deliver the greatest strength to the case being presented from the IA.

The 4 Perspectives of the BVI Model seek to show impacts such that:

- the audience, the beneficial stakeholders and wider society has been affected and changed in a beneficial fashion;
- the activity is demonstrating economic benefits to the organisation or to society;
- the digital resource is enabling innovation which is supporting the social and economic benefits accrued; and
- the organisation creating/delivering the digital resources have been benefitted within its internal processes by the innovation demonstrated.

The BVI Model therefore assumes the following four perspectives as shown in Figure 11. When data was gathered they will have been divided into the perspectives through the intrinsic nature and use of the Model Framework and so outputs are already segmented into these perspectives. Thus, outcomes and impacts will more easily and naturally fit themselves to the 4 perspectives.

FIGURE 11: PERSPECTIVES IN THE BALANCED VALUE MODEL

COMMUNICATING THE RESULTS

In the BVI Model, measures of success and beneficial impacts will be reported in a faceted fashion across these 4 perspectives. So a full reporting of the IA should expect to include the following sections made up from the discovery achieved in the BVI Model[1]:

- **Executive Summary**
- **Context for the Digital Resource**
  - The Ecosystem of the Digital Resource
  - The Stakeholders
  - The Value Drivers
  - Key criteria
- **Impact Assessment**
  - Objectives
  - Indicators and assumptions
  - Methods used to gather data
  - Outputs from the IA
- **The Impact**
  - Social
  - Economic
  - Innovation
  - Internal
- **Recommendations**

[1] Note: replace Digital Resource with the name of the resource or service being assessed

As you can see, all the previous hard work in the IA using the BVI Model means the Impact report should pretty much write itself from information and evidence already gathered. Indeed the context section could be used at an earlier stage as an interim report.

Deciding how much information to include and what to emphasise will be a matter of matching the reporting to the expected audience. This is an opportunity to consider whether the reporting is purely of the evidence found or is to take on a more advocacy role. Assuming the reporting of impact will be to decision makers then advocacy should be assumed as a natural and desirable function of the BVI Model but advocacy only happens effectively when supported by strong evidence.

As Phillips et al (2012) explain:

> *Measuring project success and gathering evaluation data means nothing unless the findings are communicated promptly to the appropriate audiences so that they are apprised of the results and can take action in response if necessary.*

They explain that communication:

- *is necessary to explain the contribution;*
- *is a politically sensitive issue;*
- *that different audiences need different information;*
- *must be timely;*
- *must be targeted;*
- *should be unbiased and modest in tone;*
- *should use the best media for the audience; and*
- *must be consistent to all audiences.*

SUMMARY

In summary, the argument for advocating a digital resource can be enunciated through the 4 perspectives as:

- Utilising the digital resource enables our organisation or activity to be more effective and efficient in delivering change and benefits to the external and internal stakeholders (Internal Impact);
- Building the digital resource and the functions that it enables ensures that our organisation or our stakeholders are gaining strategic advantage in our key areas of activity through the change and innovation inherent in this digital activity (Innovation Impact);
- Because of these benefits we are also delivering a strong economic benefit to our stakeholders and/or to the organisation that demonstrate the worth and value of our endeavours in clear monetary terms (Economic Impact); and
- Not only has the digital resource delivered all these benefits but the community of stakeholders has been changed by the resource in beneficial ways that can be clearly identified through changes in social, community, cohesion

Providing such a strong narrative backed with clear evidence of the change achieved will ensure that decision makers are able to make better-informed decisions and are more likely to follow your recommendations.

STAGE 5: REVIEW AND RESPOND ENABLES:

You have made the case for Impact through the presentation and communication of the results of the BVI Model. Now is the time to follow through and ensure that the purpose of the IA reaps results.

As Ball and Morse state that this review and respond aspect of IA is "one of the most critical in the whole process; but the danger is that it is also the one that is most neglected. The circle needs to become a spiral of action." (2008)

Build review and respond into the process to allow a period of reflection such that you can:

- Ensure that the outcomes of the IA have been communicated to all the key decision makers. Consider if there are any audiences that have not been reached with the results and what can be done to reach them effectively.
- Reflect upon the level of success of the IA in terms of securing the desired outcomes in those you are seeking to influence. Consider how much the level of success is a function of the standard of the evidence presented, the effectiveness of the process and the modes of communication.
- Continue to engage and take affirmative action with your stakeholders such that you can:
    - Work with your stakeholders on using the results of the IA for their benefit.
    - Address both the positive and negative Impacts discovered in the IA such that stakeholders can be actively consulted.
    - Consider what changes in the relationship with stakeholders might be required in response to the IA.
    - Consider what future interventions might be appropriate to resolve negative impacts discovered by working with stakeholders.
- Identify a clear task list of what has to be done in response to the IA and by whom.
- Reflect upon the IA process itself and consider which aspects worked well and which would need to be changed in the future.
- Consider in particular the effectiveness of the indicators, objectives and criteria and whether there should be changes to those in future IA.
- Reflect upon the Perspectives and Value Drivers in the BVI Model and whether they are adequate for your purposes. Would your future IA modify the Perspectives and Value Drivers in any way?
- Reflect upon the timescale over which measurement has taken place. Would measuring over a different timescale provide a more satisfying result or just repeat the results already discovered?
- Consider the data gathering resources in place (such as online feedback forms, webometrics or social media engagement) and whether there is value from continuing to gather data beyond the period of the formal IA process.
- Reflect upon the change indicated within the organisation both in terms of the IA results and also from the process of carrying out the IA. Have there been unexpected outcomes or results and can you analyse the causal links to explain why they may have occurred? Think also about whether the act of IA is itself creating change in your organisation and consider the implications (both positive and negative) of that change.
- Use the evidence provided by the IA to focus upon opportunities for staff development, training and professional growth. Turn your evidence into action by using the results to consider the change management appropriate within the organisation.

SUMMARY

The Review and Respond Stage is designed to ensure that the results of the BVI Model are actively used, actively reflected upon and then responded to with an evidence-based response. This Stage can help to improve future Impact Assessments. Further reflection upon the possible institutional benefits that can be derived from an evidence-based decision making process will help to turn ideas into action and promote sustainable change management. Most importantly, this Stage should be about making ever deeper connections with your stakeholders to work with them in response to the evidence and insights gained. This relationship is the most likely means of gaining the greatest benefits for all.

APPENDIX A: PROJECT OVERVIEW AND METHODOLOGY

The Arcadia Fund provided Simon Tanner of King's College London with a grant to construct a synthesis of methodologies and techniques and resolve these into a cohesive and achievable methodology for impact assessment of digitized resources and collections.

Arcadia requires as part of the grant that the results of this study will be made available through the King's and the Arcadia Fund's websites via Open Access.

The project website is here: www.kdcs.kcl.ac.uk/innovation/impact.html
The Arcadia Fund website is here: www.arcadiafund.org.uk/

ORIGINAL RATIONAL FOR THE RESEARCH

It has recently become clear from a number of discussions with funders and educational organizations in the UK and elsewhere that there is a need to measure and elucidate the impact of digitized resources and collections more accurately. The recent research of Simon Tanner and Marilyn Deegan into the value and impact of digitized collections has shown that there is a lack of adequate means to assess impact in this sector and thus a lack of significant evidence beyond the anecdotal.

Previous efforts have either been limited to number-crunching visitor numbers without much segmentation and analysis, or the use of anecdotal or survey evidence to try to find out about value and benefits. We remain in a situation where the creative, cultural and academic sectors are not able to demonstrate from a strong enough evidence-base that they are changing lives or having a positive impact with regard to digitized content in the way that other sectors have found it possible to do for their services or products.

In short, we need better evidence of impact. How has the digital resource delivered a positive change in a defined group of people's lives? The kinds of changes to be measured are diverse, and are likely to be in the following areas: economic, social, educational, cultural, health, political, and environmental, etc.

One problem is that many of the studies of the impact of digitized resources attempt to measure change over a short period of time (sometimes even as short as one year), and have no baseline metrics against which to assess what may have changed.

For the purposes of this study, it will be necessary to look at a range of organisations in other areas of activity to see how they establish this baseline and how they measure change and impact. In order to garner some longitudinal information, one approach we may take is to work with a small number of successful long-running digitization initiatives (JSTOR and Ithaka, Yale/Cornell/Harvard, British Library) and test these methods and metrics against them.

One vitally important consideration is the sustainability of digitized resources. One of the key reasons that it has been hard to measure impact is that many digital resources have not been supported for very long after the initial development period (and therefore the funding) has ended, and they have not been followed up over time. Initiatives like the Strategic Content Alliance, JISC's common infrastructure platform, etc, are addressing this, and we will need to work closely with these initiatives.

We propose to produce a methodology and plan to better enable evidence gathering and results presentation for impact assessment of digitized collections or resources.

Whilst not seeking a panacea to resolve all the questions addressed by the Ithaka analysis, for instance, it will however seek to produce concrete and quantitative metrics and analysis, when what we have at present is mainly a series of anecdotal evidences.

METHOD USED IN THE PROJECT

Clearly as the project progressed the original rational for it was kept in mind whilst allowing for the research to lead the project to solutions that maybe were not envisioned at the time. The project commenced in the following basic stages:

- Desk research and literature review. Investigated a range of organisations, public, private, commercial, educational, governmental, non-governmental, charities etc, to identify methods, studies, organisations and individuals with robust practices, methodologies and guidelines in impact assessment. The project carried out an extensive literature review of IA across sectors such as social, economic, health, environmental, transport, corporate, cultural, heritage, academic and library, museum and archive sectors.
- The literature review demonstrated that working at the methods levels was too low down in the process and there were too many methods to make a cohesive and applicable process to all the possible users of this research. The project had to step back and consider models in which methods could be applied rather than just the methods themselves. This changed the project scope somewhat but was deemed more likely to lead to a satisfying outcome rather than a mere listing of methods without the context of understanding how to apply them most effectively.
- Experts and those with an active interest in the project or in IA were consulted to gather more literature, more ideas and for their guidance on the feasibility of certain core concepts and ideas. In particular, Dr Jan Rae helped to resolve some of the misconceptions or confusing elements of the research and was commissioned to specifically deliver the Experts Workshop as a consultant to the project.
- Experts Workshop: The project then allowed us to gather together all the best qualified experts who specialize in Impact Assessment to garner their expertise. The report of this event is contained in Appendix A.
- The Experts Workshop allowed ideas to be tested and at this time a draft Model was being considered. As a result of the Experts Workshop a draft model for Impact Assessment was created as being the most useful means to express the synthesis of models, methods and techniques for Impact Assessment of digital resources.
- The BVI Model came into being in direct relationship to the desk research, literature review, the expert consultation and the team work of Tanner, Deegan and Rae.
- With a draft Model in place we then set out to test the Model, its methodology and it's robustness by feasibility testing against two projects. We worked with the National Museums Northern Ireland (NMNI) and with the National Library of Wales (NLW. The results of this are reported in Appendix C. It should be noted that we had hoped to provide case studies demonstrating the applicability of the Model but the peer review at the time of the meetings demonstrated that whilst the BVI Model was feasible and advantageous it was also flawed in the way it was expressed and logically arranged. This peer review and feedback helped me to revise and review the way the Model was formed and has improved the Model immeasurably. Any faults remaining are my own, but without the peer review process with the NMNI or NLW the Model would not be as it is.
- Some early ideas were shared on my blog and gained invaluable comments and support from the community (http://simon-tanner.blogspot.co.uk). Plus an element of social experimentation and use of ideas in consultancy with libraries, archives and museums helped to confirm some aspects of the cultural value considerations. The comments on the blog posting were very helpful in developing our thinking. The blog posts on this project garnered over 3,500 views in the 4 months to September 2012 which is seen as an indication of the interest in this subject by a wide and diverse community of interest.
- The project as funded by Arcadia ended with the formation of this document and its dissemination.

APPENDIX B: OUTCOMES OF THE EXPERTS WORKSHOP

This Appendix is authored by Jan Rae, Marilyn Deegan and Simon Tanner.

IMPACT ASSESSMENT WORKSHOP OUTCOMES REPORT

Principles Function Room Maughan Library
King's College London
Wednesday 2nd and Thursday 3rd May 2012

INVITED PARTICIPANTS:

- Simon Bell (SB), Open University (OU)
- Ellen Collins (EC), Research Information Network (RIN)
- Kevin Dolby (KD), Wellcome Trust (WT)
- Claire Donovan (CB), Brunel University (BU) (unable to attend)
- Carol Edwards (CE), National Library of Wales (NLW)
- Thomas Fischer (TF), University of Liverpool (UOL) (attended 2nd May only)
- Clifford Harkness (CH), National Museums Northern Ireland (NMNI)
- Maja Kominko (MK), Arcadia (A)
- Paola Marchionni (PM), Joint Information Systems Committee (JISC)
- Amanda Nelson (AN), Joint Information Systems Committee (JISC)
- Dave O'Brien (DOB), City University (CU) (attended 2nd May only)
- Gao Wei (GW), King's College London (KCL) (attended 2nd May only)
- Shannon West (SW), British Council (BC)

LEADING THE WORKSHOP:

- Simon Tanner (ST), King's College London (KCL)
- Marilyn Deegan (MD), King's College London (KCL)
- Jan Rae (JR), Open University (OU)
- Rebecca Kahn (RK), King's College London (KCL)

OVERVIEW – PURPOSE OF THE WORKSHOP

The main purpose of the workshop was to draw on experience and knowledge of impact assessment (IA) across a range of fields of practice in order to inform the development of a scalable methodology for IA of digitised resources in the creative, cultural and academic (CCA) sectors. The high level of buy-in to the workshop invitation allowed the organisers to draw together representatives from the Academic, Cultural, Health, Library, Environmental/Ecological and Science sectors and created an opportunity for interdisciplinary exchange centred on the topic of IA. Furthermore, the range of invited participant's experience and breadth of knowledge represented suggested that there would be potential to engage with both theoretical and practical considerations regarding IA.

WORKSHOP DAY ONE, WEDNESDAY 2ND MAY – DAY ONE AGENDA

The agenda for the first day of the workshop was centred on strengthening an understanding of issues relating to the selection of appropriate indicators of change for the CCA sectors. It also provided an opportunity to identify possible relevant types of indicators of change and ways in which they could be measured.

Engaging the CCA sectors with a clearly drawn methodology for IA of digitised resources is overdue. However, trying to establish such a methodology with reference to the CCA sector's own literature is difficult as the IA agenda is under represented there.

One of the first considerations therefore was to draw on the expertise present in the workshop and to look, from a range of perspectives, at individual components of an IA methodological framework. The starting point was to examine participant's views on impact indicators, to illuminate what sort of entities they were measuring in their sectors and how these entities were measured.

DAY ONE - OUTCOMES OF DISCUSSIONS

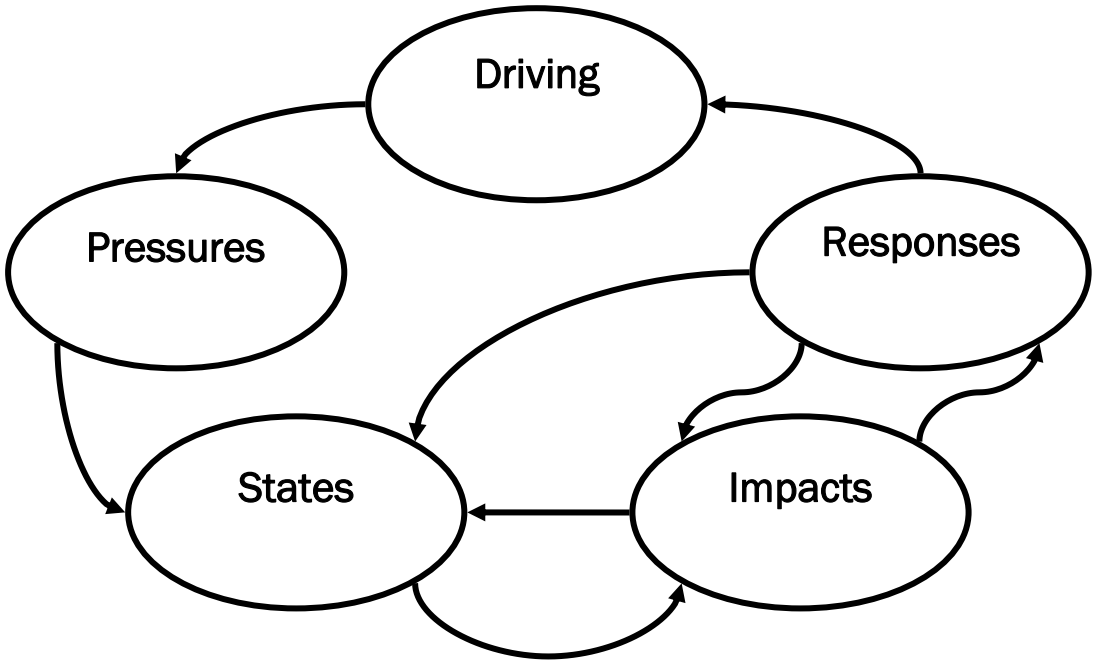
BROAD CONSIDERATIONS FOR THE CCA SECTORS

It was argued that the CCA sectors should talk about effects and values, not impacts. Effects are more neutral, they can be positive or negative. Suggested reading: The Public Value of the Humanities, Jonathan Bate (Bloomsbury Academic Publication 2011).

The cultural sectors can feel pushed to evaluate in ways that are not always deemed appropriate, e.g. with too greater emphasis placed on evidencing economic gains.

It was considered important to recognise the distinctive paradigms of practice which distinguish the CCA sectors. To take into account the different types of expertise represented there and the effect that this will have on arriving at indicators of change that are both rationale and accountable to different spheres of influence, e.g. in broad terms: social sciences quantitative visibility and accountability / humanities qualitative judgements.

There was a suggestion that the CCA sectors need to understand their drivers for sustainability and the influence of different pressures on the desirable state for the sectors. It might be potentially useful to look at the DPSIR causal framework for describing societal and environment interactions (DPSIR refers to Driving forces, Pressures, States, Impacts and Responses) in order to contribute to the definition of appropriate impact criteria for the CCA sectors (framework below).



Subjectivity in cultural constructions and important considerations in terms of digitised content in cultural contexts. For example, can making something digital allow you to measure it differently? Can appropriate measurement of complex associations and networks of usage provide opportunities to consider more subtle types of impact measurement?

It was argued that the focus should straightforwardly be on what needs to be measured and why when deciding on indicators of change. In effect digitisation does not alter the object of scrutiny only technologically afforded access to it. Typical indicators could therefore be related to: economy; efficiency (costs per unit); effectiveness (outcomes v costs); equity (reach /appropriate inclusion).

DEFINITION AND USE OF TERMS

Definitions put forward by workshop participants:

- Impact – a stakeholder defined assessment of meaningful change for good or ill.
- Impact - something that you aspire to and see whether whatever you do achieves that.
- Impact - lots of areas of use. Change in health-related quality of life outcomes. Want to see an improvement.
- Stakeholders - people who share values.

DEFINING DATA GATHERING APPROACHES IN OTHER SECTORS

- That audience segmentation research is being used in the museums sector as an aid to distinguishing among particular audiences. It is open to question how helpful this is to understanding museum audiences or how it relates to measuring the value that they place on digitised cultural content.
- The health sector recognises that appropriate impact criteria relate to distinctive types of health provision such as the health promotion or palliative care agendas. Quantitative measurements of impact through statistical analysis are used in the field to measure the extent of difference. This provides objective evidence which is neither positively nor negatively charged. This type of measurement is useful in relation to areas such as the health economy, e.g. to answer such questions as 'Can you offer substantively the same health provision for less money?' However, appropriate measurement criteria related to the quality of life agenda require measurements related to individual's quality of life, e.g. experience of pain or breathlessness which are subjective in nature.

SECTOR SPECIFIC IMPACT MEASURES AND METHODS

- Impact criteria for the British Council – they seek to measure (positive) change in respect of the following areas of interest:
  - Increased levels of trust between people in UK and people overseas.
  - Programmes: sustained positive change.
  - (Politically important) Number of people worked with and a positive change that results.
- Impact assessment in healthcare contexts can relate to
  - Awareness of best practice through publications (outputs).
  - Informing changes in clinical practice (outcomes).

- Adherence to guidelines for appropriate conduct, i.e. ethical boundaries for clinical trials/animal experimentation.

- In some institutional contexts (JISC) the term impact is not closely defined but can encompass the following:
  - Change value or benefit that result from activities – evidenced through triangulation of data sources.
  - Change may equate to - intended/unintended, neg/pos, long-term/short-term effects.
- Impact assessment can relate to the particular values that you are trying to promote. Therefore in making decisions about indicators you need to understand those values.

WHAT IS IT THAT MAKES SOMETHING AN INDICATOR?

There are different definitions of indicators: some are measures, some are about performance. There are project indicators, continuous improvement indicators, business indicators (which are usually about outcomes). These are very different things and have very different uses. For example, most British Council work involves the delivery of a product or programme/service. There will be indicators across different categories of work. There are resources, and indicators of resources: for example people, things delivered, etc. To measure outcomes, there is a need for indicators around what are people learning, what are they doing, what the long-terms benefits are. Indicators are needed across the whole framework. You need to know that the things you targeted have been achieved, and you need to have as few indicators as possible to give the most information. Indicators should be SMART, and there are other considerations: Is the data available? Is it credible? Do we have enough indicators? Indicators can be qualitative. Indicators INDICATE something. They are not reality, and it is important not to pick the wrong indicators just because they are easy to collect: web site statistics for instance.

HOW DO WE ASK QUESTIONS THAT ESTABLISH AN INDICATOR?

- What is my goal?
- What is the commensurability between the indicator you are measuring and the thing you want to measure?
- Is it a SMART (Specific, Measurable, Attainable, Relevant and Timebound) Indicator – is the data available, is the source of data credible, are they enough, is it possible to gather and possible in timeframe,
- What is feasible to action the indicator?
- Test the indicator – if all these things were true would you be satisfied that the measure has been achieved.
- We must create a shared understanding of an indicator and what it is for and what it will measure?
- We must do the research that demonstrates that an indicator will generate a sense of the tendency for causality between action and effect. We must be careful not to assume this causality exists in all other areas that are similar to that in which the first indicator was used.

There are dangers: for instance if you introduce an indicator, people may try to modify their behaviour to meet the indicator—but that does not necessarily suggest success. There is a danger in producing numbers that are complex, because these may not be understood. It is easy to count how many children come to a workshop, but it is difficult to know what the outcome of the workshop might be. There is also a difference between an indicator and a target, and indicators need to be measured under a certain set of conditions. We need to be clear what these conditions are. There are also some concerns in the digital

realm. Causality: is the effect down to the tool, the infrastructure or the content? Do these things matter? How do indicators change when you change scale? For example in small projects and small communities?

There are also pressures to evaluate digital resources where previously analogue resources were not evaluated quite so explicitly. There may be different outcomes from digital resources (for example, this is shown by the Old Bailey Online). We need to look at elements of economy and efficiency, as well as effectiveness. Better effectiveness may result in different outcomes. What does digitisation offer? Increase in activity (efficiency); long-term costs lower (economy); freedom of access (equity); environment and effectiveness also important. Indicators we develop need to change over time. Do we need indicators for defined user or stakeholder groups? What are the unique things about the things you want to measure as these will not be shared values with other things that might be making an impact – so measure the unique values to make for a good indicator.

PROS AND CONS OF INDICATORS – SUMMARY OF PARTICIPANT'S VIEWS

Pros	Cons
Useful for product measurement in terms of value for money criteria. Outcome framework in appropriate context, e.g. • Learning frameworks • Behaviour • Action	Not always based on shared understanding of what an indicator should measure and for which stakeholders (agreement shouldn't be assumed)
Measure of tendency in certain conditions	Contested audience satisfaction – one person's view of success could be another person's view of failure
Good thing to do 50%	Impact measures or simply change and evolution measures?
Good politically 50%	Don't tell you everything - tell you something, i.e. what you ask
Good Management Tool, i.e. health check	Subject to manipulation and falsification
Motivating	
Linked to rewards (positively)	
Reality check	
Good early warning	

END OF DAY CONSIDERATIONS

- Positively changing people's lives through the use of digital resources and their delivery could offer: equivalence, economy and efficiency.
- Indicators are not the truth; they are a measure of tendency.
- Consider writing appropriate indicators for the CCA by defining what goals you are trying to achieve and how these are related to someone's life or life opportunity.
- Consider the relevant stages in determining how to capture in an indicator the level of complexity you are trying to understand in terms of someone's life or life opportunity.
- Consider the nature of evidence that is required in terms of the qualitative and quantitative mix and the reliability of any data. Over complexity may mean that results are difficult to interpret. Use of anecdotal evidence could be considered unreliable.
- Producing complex numbers or using anecdotal evidence may be counterproductive. A range of reliable qualitative and quantitative measurements may be required as evidence of impact.
- Digital contexts:
- Need to look at elements of economy, efficiency and effectiveness of digital resources which are evaluated for use. With digital, better effectiveness results in different outcomes than from traditional analogue resources, i.e. something more (new) can be afforded by the use of digital resources (e.g. Old Bailey online).
- There is potential to develop indicators that link to unique qualities relating to the digital world such as:
- Perfect rendering of an original artefact.
- Seamless route to scale.
- Opportunity to recreate the lost (in certain contexts).

WORKSHOP DAY TWO, THURSDAY 3RD MAY – DAY TWO AGENDA

The agenda for the second day of the workshop centred firstly on drawing out a greater understanding of the issues relating to establishing appropriate baseline data for the CCA sectors and secondly on sharing participant's knowledge of particularly useful methods, tools and techniques for gathering data.

The CCA sectors need to identify a range of baselines against which changes can be measured and that make possible, for example, specific assessment of key features of the digitised environment (e.g. related to the use of digitised resources) at a point in time. Help is required to understand not only general pointers that could help to identify any baselines but also to ascertain the issues around describing the CCA stakeholders that the sectors seek to impact upon.

DAY TWO – OUTCOMES OF DISCUSSIONS

ESTABLISHING BASELINES

In order to measure change in anything it is necessary to have a starting point, a baseline. This is an assessment of the current situation discovered through a piece of research, and in some environments, this is clearer than in others. There are varying elements of complexity in setting baselines, for example, in the health field baselines can appear to be clear and measurable, but this is not always necessarily true. In the digital domain, one complexity is not always knowing enough about the audience as the relationship between a resource and its audience is not always direct and known

For qualitative baselines, these are identified through the application of a Needs Analysis. The questions to be asked are:

- How does the current state work?
- What kind of design intervention will have an influence?
- What indicators need to be defined and what is the baseline on the indicator.
- What influences the indicators and source? There could be several influencers that make it too complex to see a change in one area.

It is preferable to choose a data source that already exists and is credible for setting baselines. Creating new ones is difficult and problematic.

There are however problems in creating baselines as data points can be unstable. It may be important to have historical points of reference for these. Another problem can be with retrospective impact assessment where no baselines were established initially and these have to be assumed by extrapolation from the current (post intervention) state. Post-hoc establishment of indicators is very difficult.

Some suggestions were made about how to establish baselines practically. These included:

- Auditing particular areas around which there has been a particular issue could support the identification of a useful baseline.
- Select primary areas for investigation and improvement, then set timeline and assess whether an improved baseline has been achieved.
- Alternatively, spot an opportunity to create a baseline around what it is that you are looking for. Set indicators that can support the gathering of appropriate forms of evidence to create a reliable baseline for a particular area of interest. Use appropriate rating scale for data collection – that can be retested at appropriate intervals.
- It is ideal if you can call upon data that already exists.
- This 'opportunity' approach can be appropriate when you are creating a baseline for something you are planning to achieve (through an intervention) and then setting indicators which allow you to track progress over time.

BARRIERS IDENTIFIED

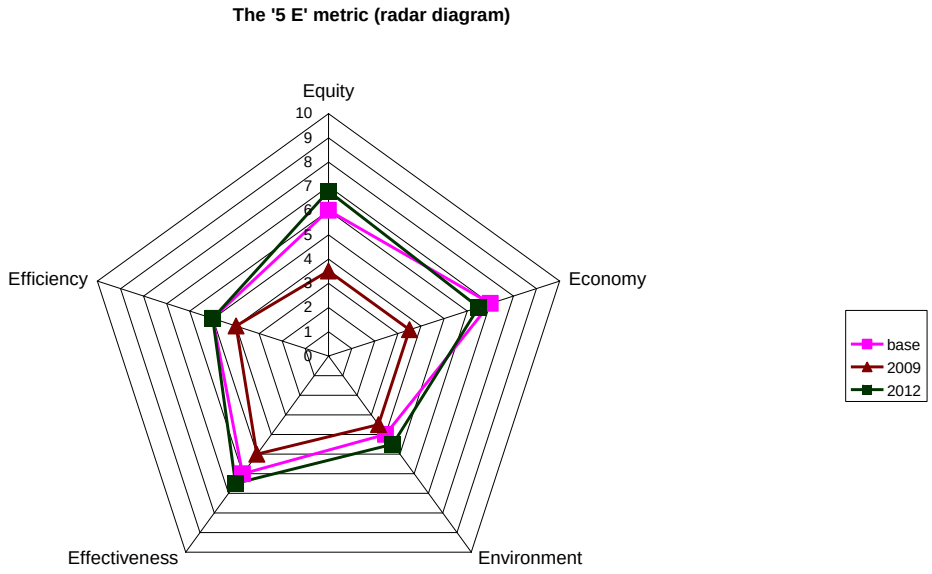
The CCA sectors have identified particular barriers to engagement with the construction of appropriate baselines:

There are no reliable and valid sources of evidence on which to draw, presently or historically, from which to construct baselines.

There is a lack of capacity across CCA sectors to contribute to gathering the objective evidence of performance of digitised resources in relation to their audiences and individual life enhancement.

ALTERNATIVE APPROACHES CONSIDERED

It is important to look at other ways of defining the current position of an area of interest in relation to digitisation. Ways that are not so much focussed on depicting the current state as a baseline but that rather gather information from stakeholders who supports the creation of a **radar** or **amoeba** diagram depicting the current state of digitisation and the desired direction of travel. Taking ideas from both days of the workshop a '5 E' Metric (i.e. Equity, Economy, Environment, Effectiveness, Efficiency) for CCA IA would look something like this:



`

Another useful metric suggested was sustainability. Not visually depicted here but identified in the discussions was the more amoebic version of the radar diagram with more organically defined boundaries (see Sustainability Indicators: Measuring the Immeasurable? by Simon Bell and Stephen Morse, London, Earthscan, 2008), mapping the agreed contours of an area and the optimum shape desired over a given timescale.

The advantages of this alternative approach towards determining the current state are that it:

- Engages the relevant communities in discussions regarding indicators and the stage at which something has been achieved.
- Supports the visual representation of an area of interest and the desired direction of travel of key features.
- Is a more sustainable approach than traditional baselines because it is agreed and owned by the community of interest that constructs it?
- Can draw on both qualitative and quantitative data which can be drawn from a broad range of community inspired sources.
- Does not set out to be an ideal measure. However, this is more than compensated for by the sustainability it offers for describing the area over the long term.

- Helps to support both the visual representation of the journey of change which a sector is going through and a depiction of when something has been achieved - with the band of equilibrium set by the stakeholders.

The positive depiction of this alternative means of defining 'where we are now and where we want to move towards' drew some constructive criticism suggesting that it could be rejected in certain circumstances, e.g. in areas with well established baselines that favour hard data, and asking how are appropriate benchmarks set from which to evaluate change.

The selection of which type of approach to take can be influenced by whether your interest is in:

- New areas with little data, then the amoeba approach is useful.
- Better established areas with statistical data and quantitatively measurable indicators – then the traditional baseline approach can be accepted.

Whichever approach is selected, the process to manage and measure data which is of value to you remains. This may require gathering evidence which is broadly scientific in nature (quantitative) or creating the appropriate representation of experiences and emotional response (qualitative).

STAKEHOLDERS – COMMUNITY OF INTEREST

In any impact assessment, it is necessary to identify as clearly as possible all the potential stakeholders: stakeholder's interests can determine the impact indicators used, and one fact to be borne in mind is that the balance of stakeholders can shift during the course of a project. Project need to allow for this and to review the stakeholders and their interests constantly.

There is a need for a typology of stakeholders; set of stakeholders should cover all types / a blend of different types: expert to naïve; young to old etc. This diagram indicates some likely stakeholders:

Two specific examples were discussed in relation to stakeholders. The National Museums Northern Ireland don't actually know who their most of their stakeholders are. Some segmentation research is being done to discover this, and focus groups are being run. Museums have large and diverse collections, and this makes it difficult to find where points of engagement will be with the users. This is changing—from a lot of academic engagement to much less. Student access is quite low; older people using materials more than previously; there is commercial activity from publishers. The sense of place is very strong in NI, and so there is a great deal of interest in local history.

The National Library of Wales also has an audience with a keen sense of place and have been digitising newspapers produced in Wales, and written in Welsh or English newspapers. The stakeholders for these are:

- Funders: the Welsh government.
- Users:
  - Anyone interested in family and local history.
  - Students undertaking projects.
  - The wider general community and community groups.
  - Content owners.
  - Publishers.
  - The press.
  - Welsh communities outside of Wales—this has global appeal (Patagonians are the biggest welsh-speaking group outside of Wales).
  - Celtic studies courses.
  - Schools.

In order to interact with these stakeholders the NLW is planning to hold focus groups and contacted a wide range of people at the beginning of the project.

SHARING USEFUL METHODS, TOOLS AND TECHNIQUES

A number of useful suggestions were made concerning these:

- Triple Task Method. Gather stakeholder group that is representative of the population you are trying to understand (broad types you would expect to be experiencing the changes). 1. Establish amoeba. 2. Group evaluates itself. 3. Group is evaluated from outside.
- Map factors likely to influence engagement. Map allows you to see how your population might look. But you can never be quite sure that the people you choose represent a particular cluster.
- Use any range of tools and techniques, but they need to be part of a strategy. Stakeholder groups can determine the strategy, and therefore the tools and techniques. Tools are neutral; fitness for purpose depends on how they fit with strategy and how they are used.
- Case studies: can make sense of huge amounts of data. Can tell a partial story—not always objective or representative. Can be really useful but may just find the things you are looking for. Needs to be done by someone from the outside to be most useful. Can tell the story you want to tell and may be driven by a prior need. Need to reveal the unexpected as well.

- Key is holistic approach. Issue of interpretation of data is very difficult and partial. It needs creative imagination to interpret.
- Longitudinal studies: Projects have to be sustainable for 3-5 years. Can't expect impact in under one year. Can expect it within 5 years. Measurement is an ongoing project. Real impact is long-term, 17 years is the time to show an economic impact.
- It is often difficult to track the effects of things over time and it is expensive to collect the data.

IN CONCLUSION: A SNAPSHOT OF THE VIEWS OF THE WORKSHOP PARTICIPANTS

- Good group of people, prepared to share, make concessions to other people. Really, really enjoyed it, got a lot out of it. Important that this develops what we were thinking.
- Deepened knowledge of understanding of other sectors.
- Made new contacts, network into new fields.
- Understand more about different sectors. Understand challenges and sensitivities around digital technologies.
- Would have liked to know more of what we are doing.
- Exchange with different sectors – realise things very different in CCA context. Liked amoeba approach - change journey.
- Wanted to understand more about why the emphasis on changing people's lives?
- Brilliant couple of days - got more than he put in. Interdisciplinary stuff very powerful. Liked the amoeba. Whatever we do, we should keep it simple.
- Leadership is about doing the best you can and putting the stake in the ground. Got to get on and do something.

This final statement very much sums up the intention of the workshop with respect to an impact assessment methodology for the creative cultural and academic sectors.

APPENDIX C: OUTCOMES OF THE PEER REVIEW ENGAGEMENT WITH THE NATIONAL MUSEUMS NORTHERN IRELAND AND THE NATIONAL LIBRARY OF WALES

VISIT TO NATIONAL MUSEUMS NORTHERN IRELAND, 6 JUNE 2012 (NMNI)

PRESENT FROM NMNI:

- Clifford Harkness (CH)
- Moira Colcannon (MC)

GENERAL CONTEXT

The meeting was arranged in order to discuss an early draft of the BVI Model and to gain feedback on its application to NMNI.

The National Museums Northern Ireland are currently in the process of reviewing their collections and catalogues, and thinking about how they manage collections (including digital) and how they deliver these to their visitors and users. They are asking some hard questions of themselves: What is a digital resource? Where is its boundary? CH proposed that they should view their digital assets as being a knowledge-base machine, embedded in the web site. The collections need to be in a digital vault, and are crucially aware of the importance of digital preservation and good curation.

NMNI FUTURE PROJECTS

NMNI are looking for projects that will help them achieve their strategic objectives. They are planning projects which are nominated against themes, for example: the Titanic, the Decade of Centenaries (2012-2023, including the Titanic, WWI, the Easter Rising etc). The Decade of Centenaries projects are seen as extremely important and will have political, physical and community dimensions. These will be evaluated over the next few years. These projects will have a high level of media profile, not just in Northern Ireland, but the projects are unique to Northern Ireland because of the number of contested histories (Catholic/Protestant, for example).

DISCUSSION OF THE BALANCED VALUE MODEL

In order to test the BVI Model hypothetically, we discussed a potential project related to the linen industry. We worked through the model in some detail, noting aspects of it that worked well, aspects that were more difficult to understand and anything that was missing. Initially, the Model was found to be somewhat confusing as there were many issues that had to be taken account of at the same time. At that time the steps in the Model were not clear enough and as a response to the peer review we clarified the steps and stages.

Some of the language of Impact Assessment was also difficult to understand, given that it derives from other fields and is unfamiliar. At that time we were using the language of the DPSIR model but this language did not work for the NMNI at all. We gained useful advice about what language works for our community and what doesn't. Suggestions were made for what needed to be added in order to provide fuller explanations. We have incorporated these into the Model

CH and MC remarked that museums in general don't know who their audiences are. They are established according to Reithian principles which include an equal consideration of all viewpoints, probity, universality and a commitment to public service. CH and MC can't see how you could ever be sure of your audience, and so projects and services must be delivered to the widest possible range of audiences. Another

consideration is that curators must continue to mount exhibitions, curate objects etc in the physical museum, as well as delivering virtual content. This aspect of knowing the audience and the stakeholders will remain a challenge to those engaging in IA.

We discussed context and ecosystems, stakeholders, value drivers, balancing pressures, key criteria (social and economic impacts; innovation impacts and internal process impacts. We also discussed how the NMNI might implement impact assessment using the Model.

The meeting was extremely valuable in highlighting a whole range of issues that needed to be taken account of, and these have been reflected in our later drafts.

VISIT TO NATIONAL LIBRARY OF WALES, 6 JULY 2012 (NLW)

PRESENT FROM NLW:

- Andrew Green, National Librarian
- Carol Edwards
- Lyn Lewis Dafis
- Alan Hughes
- Owain Roberts
- Manon Foster Evans
- Arwel Jones
- Avril Jones
- Lorna Hughes (University of Wales Chair in Digital Collections)

GENERAL CONTEXT

Following on from the visit to National Museums Northern Ireland, the comments made by colleagues there were addressed, and adjustments made to the Balanced Value Model. In particular, the Framework was further developed and this was a particular aspect reviewed in detail by our NLW colleagues.

The NLW has been involved in creating digital resources for 15 years but has done little investigation into their Impact hitherto. They relay largely on anecdotal evidence at the moment, but recognize the need to formalize this, and have started planning for Impact Assessment. They feel that to carry out IA thoroughly, resources have to be allocated, but that this is a necessary investment. NLW have been looking at using web analytics and they expressed the need to carry out some qualitative work via surveys and questionnaires. They have a good deal of information about those who visit the library to use its resources, but not so much about online users. They are facing funding cuts so that it is increasingly difficult to obtain funding for digital projects, but there is a new digital library for education in Wales planned which may be a source of new projects.

STAKEHOLDERS

The NLW has a large and diverse range of stakeholders. These include funders: the Welsh government in particular but they have other sources of funding; users: anyone interested in family and local history, students undertaking projects, Celtic studies courses, schools, the wider general community and community groups, Welsh communities outside of Wales—this has global appeal (Patagonians are the biggest welsh-speaking group outside of Wales); content owners; publishers; the press.

NLW FUTURE PROJECTS

NLW will be launching a large digitized newspaper project (newspapers produced in Wales, and written in Welsh or English up to 1910, 1 million pages) in 2013, and they are just beginning a large project on World War I materials.

NEWSPAPER ECOSYSTEM OF DIGITAL RESOURCE

- 1 million pages of NLW newspaper – scanned and OCR'd = searchable.
- Black and white images, no colour
- Freely available – subdomain of the NLW website – welshnewspapersonline.llgc
- Title level access from the MARC21 cataloguing system accessible via NLW OPAC.
- Whole, full text, Google searchable
- Open without user ID's or logins – no charges for use, free
- Responsive design – so designed for the Web browser environment of any device capable of driving a browser. For instance, will resize and reshape in relation to the device.
- Bespoke built interface within Fedora.
- £3m funding with £2m from UK Govt plus £1m for OCR from European Development Fund (EDF).
- Analogue was heavily used by written request.
- An objective of the Theatre of Memory strategy was to digitize all print materials in Wales.
- Internally driven activity and process. Newspapers gathered and collected by the NLW, but not from the Legal Deposit process. A little bit random in places and there are some small gaps in the collection.
- The selection process was comprehensive coverage.
- Copyright – not held by NLW, digitising but not stating any ownership.
- 70% English, 30% Welsh.

JOHN THOMAS PHOTOGRAPHIC COLLECTION: ECOSYSTEM OF DIGITAL RESOURCE

- John Thomas – a collection of glass negative photographs. Early 1800's – mixture of portraits, landscapes, townscapes.
- Collection given to the NLW in the 1920's by private individuals.
- "Created the first Welsh celebrities"
- 4,000 images – B&W images, including low level descriptive metadata at least to identification level. Was catalogued over the years.
- Digitized in 1999. Became live at same time. Accessed through the NLW catalogue – been ingested into Fedora system. Faceted browsing by photographic collection. Integrated into NLW web resource.
- Web-based access. No other surrogates like CD, DVD but printed in books etc.
- Same resolution as 1999 – no zoom version.
- Collection now accessible from Europeana – Web-based, thumbnail results, metadata – but if want to look at larger images then will return you to the NLW catalogue to deliver the image.
- Some images are available on Flickr – some stats available – hits, comments and faves.
- NLW held copyright.
- Prior to digitization, people ordered slides and it was well used. Including publisher and broadcasters and family historians. Anecdotal evidence available only. Plus contact books freely available on the shelves.
- Post digitization – stats on NLW website will be dependent upon the existence of the server logs – no analysis is available at this time. Activity to be built upon in near future.

DISCUSSION OF THE BALANCED VALUE MODEL

The BVI Model was discussed by the team in the context of the Newspaper project and an existing photographic collection, the John Thomas Collection. The completion of a description of the digital

ecosystem was completed for each. We worked through as much of the remainder of the Model as possible for the Newspaper project. The detail of discussion was so great in the Context stage that the remaining stages in the Model were explored in a briefer fashion.

All agreed that the Model was extremely persuasive and they expressed a desire to implement it in full at the NLW. The NLW worked through the Framework for one of the Perspectives and Value pairs and this proved effective, but the process of assessing the Perspective/Value pairing was at that time lengthy and hard. Once selected though the remainder of the Framework was completed for that pairing quite quickly. The Model was viewed as complex. The NLW offered some useful and detailed critiques about the aspects that they could not understand and that they could not see how the steps/stages worked.

In response to this excellent feedback, the Model and the Framework have been revised. The key aspect of change from the NLW visit was to re-order some of the early Context steps into a better order that allowed the logic model to operate better. The requirement for clarity of explanation and helpful lists of methods was incorporated into the reporting.

APPENDIX D: METHODS AND DATA GATHERING TECHNIQUES FOR IA

This Appendix is an indicative guide to relevant methods and techniques that could be used within the Balanced Value Model. Obviously no list can be comprehensive, but it is hoped this list, with a description and references provided will be helpful in finding a good method.

This Appendix is authored by Marilyn Deegan and Simon Tanner.

- Audience Analysis
- Balanced Scorecard Approach
- Choice modeling
- Content Analysis
- Consumer surplus
- Contingent valuation
- Cost benefit analysis
- Critical Incident Technique
- DPSIR: Driving forces, Pressures, States, Impacts and Responses
- Economic Impact Assessment
- Ethnographic research
- Focus Groups
- Interviews
- Life Satisfaction Assessment
- Logic models as a means of evaluation
- Longitudinal study
- Multi-criteria analysis (MCA)
- Participatory approaches
- Personal mini-mapping
- Proportional Multiplier Analysis
- Public Value assessment
- Quality Adjusted Life Years (QALYs)
- Referrer Analysis
- Revealed Preference Methods
- SMART Criteria
- Social Auditing
- Social Media Strategy
- Social Return on Investment (SROI)
- Stated preference methods
- Subjective wellbeing
- SWOT Analysis
- Theory of Change
- Triple Bottom Line
- Triple Task Method
- User Feedback
- Website analytics
- Webometrics
- Web Questionnaires and Surveys

AUDIENCE ANALYSIS

Public sector organizations are under increasing pressure to demonstrate that they are used and valued by an appropriate audience. Freely accessible cultural organizations such as museums that do not require any kind of registration often do not know exactly who their audiences are: in the past they have worked on the assumption that they should make available artifacts, information and education according to the Reithian principles which include an equal consideration of all viewpoints, probity, universality and a commitment to public service. The assumption is always that projects and services must be delivered to the widest possible range of audiences. However, with the emphasis on impact and the advent of digital technologies, audiences can be ever larger and more widespread, and it is important to research the needs, expectations, and satisfaction of the audiences more precisely than has been necessary or even possible in the past.

Rachel Quirk, Martin Oliver, Max Hammond and Claire Davies (2008), The Guide to Researching Audiences, JISC Strategic Content Alliance, http://sca.jiscinvolve.org/wp/2009/02/05/download-audience-analysis-toolkit/

BALANCED SCORECARD APPROACH

A Balanced Scorecard combines financial and non-financial measures to provide richer information about activities than can be given by financial measures alone. It is thus of great utility in the cultural field where the qualitative and subjective benefits of an activity have to be factored alongside the financial benefits.

In a Balanced Scorecard, the number of measures should be constrained and clustered into four groups or perspectives. Originally these perspectives were "Financial", "Customer", "Internal Business Processes", and "Learning and Growth", and five or six measures were chosen for each perspective. Since its original development in the 1990s, the Balanced Scorecard has become more complex and sophisticated, and other authors have suggested other labels for the perspectives. The Balanced Scorecard is the Basis for the Balanced Value model.

R.S. Kaplan and D.P. Norton D P (1992) The Balanced Scorecard: measures that drive performance, *Harvard Business Review* Jan – Feb pp. 71–80.

Bernard Marr, Balanced Scorecard - explained: examples, templates and case studies, http://www.ap-institute.com/Balanced%20Scorecard.html (see in particular section on Government and Not-for-Profit Balanced Scorecards).

CHOICE MODELING

Choice modeling is also a stated preference method, but it differs from contingent valuation in that respondents are asked to make a series of clear choices about different options, rather than expressing a willingness to pay for certain goods or services. There is a price component to this, but there are also non-tangible values that are presented as choices: O'Brien uses the example of staffing levels at a museum in relation to opening hours, for instance.

Choice modeling is a highly sophisticated combination of economics, mathematics and statistics. It is thought to be an accurate predictor of human behavior, but choice models are complex to design, and expensive to apply. However, it is becoming increasingly popular as more and more tools become available. (O'Brien p. 28)

N. Hanley, S. Mourato, and R.E. Wright (2002), Choice modelling approaches: a superior alternative for environmental valuation? *Journal of Economic Surveys*, 15(3). 435-462, http://dx.doi.org/10.1111/1467-6419.00145

CONTENT ANALYSIS

Content analysis refers to a general set of techniques useful for analysing and understanding collections of text. Content analysis has been performed on text for centuries—for instance, the first concordance to the Bible was completed in 1230—but it has grown hugely in importance, functionality and sophistication in the last sixty years given a) the availability of computer-based methods of analysis and b) the vast proliferation of online texts (mostly unstructured) that users need to make sense of. Content analysis can be applied to any kind of textual data.

Content analysis is now widely used for extracting the key themes of large bodies of online document, and for finding nuggets of information buried within these bodies of text (commonly known as data mining). The tools needed for content analysis operate at two levels: the tools needed to find the content, and the tools needed to analyse the content. The methods are a mixture of linguistics and statistics, and there are free tools available as well as commercial ones. These permit highly sophisticated analyses of unstructured online data, and as well as finding, retrieving and analysing data, they can display meaningful relationships between data over a vast range of topic areas and data sets. For instance, the Dark Web Forum Portal at the University of Arizona has been collecting and analyzing data from international jihadist forums. It 'provides access to 28 forums, which together comprise nearly 13,000,000 messages. The Portal also provides statistical analysis, download, translation and social network visualization functions for each selected forum.' The purpose of this is to gain a greater understanding of international terrorism, and they use a range of content analysis techniques including multilingual data mining, text mining, web mining, web metrics (technical sophistication) analysis, sentiment analysis, authorship analysis, and video analysis.

Dark Web Forum Portal, http://ai.arizona.edu/research/terror/

Eric T. Meyer, What is Content Analysis? http://microsites.oii.ox.ac.uk/tidsr/kb/54/what-content-analysis

CONSUMER SURPLUS

This is the value that consumers place on accessing resources over and above any costs that may be incurred to obtain them. For example, Wavell et al cite a study carried out for the St Louis Public Library that showed that for every $1 of public money spent, users received more than $4 in direct benefits.

C. Wavell, G. Baxter, I.M. Johnson, and D.A. Williams (2002) Impact evaluation of museums, archives and libraries: a review of available evidence. Final report for Resource: the Council for Museums, Archives and Libraries. Aberdeen: The Robert Gordon University, http://www.rgu.ac.uk/4E339E80-595A-11E1-BF5B000D609CB064

CONTINGENT VALUATION

According to O'Brien:
Contingent valuation is based on understanding what people would be willing to pay for a particular good or service, for example library provision or visiting a ballet performance. The techniques are based on constructing a hypothetical market for the non-market goods to be valued and then attaching prices to them by asking people directly about their willingness to pay or willingness to accept compensation for it.

This might prove to be a useful method for the cultural sector, if it is possible for people to estimate the 'worth' of such intangible benefits. As O'Brien also remarks, 'Placing a value on a good or service during a contingent valuation is a difficult task and requires well thought-out, well developed and very detailed questions to avoid the elicitation of 'meaningless' answers' O'Brien p. 25. However, a number of studies using CV methods have been able to estimate cultural value in monetary terms, showing that, for example,

the British Library creates 4.4 times the level of its annual public funding in cultural value. (Reported in Bakhshi, Freeman and Hitchen 2009).

The downside of contingent valuation is that it can be costly in terms of time and money, given that it relies largely on one-to-one interviews.

D. O'Brien, (2010). *Measuring the value of culture: a report to the Department for Culture Media and Sport*. Department for Culture, Media and Sport. P

E. Thompson, M. Berge, G. Blomquist, and S. Allen (2002) Valuing the arts: a contingent valuation approach, *Journal of Cultural Economics*, 26, 87 –113.

D. Throsby(2003) Determining the Value of Cultural Goods: How Much (or How Little) Does Contingent Valuation Tell Us?, *Journal of Cultural Economics*, 27(3), http://dx.doi.org/10.1023/A:1026353905772

Jura Consultants (2005) *Bolton's Museum, Library and Archive Services; An Economic Valuation*, http://research.mla.gov.uk/evidence/documents/bolton_main.pdf

L. Venkatachalam (2004) The contingent valuation method: a review, *Environmental Impact Assessment Review*, 24, http://sard.ruc.edu.cn/zengyinchu/files/paper/The_contingent_valuation_method-_a_review.pdf

COST BENEFIT ANALYSIS

A cost-benefit analysis is an analysis of the benefits in relation to the costs of an enterprise or project. It is a systematic process, and usually has two purposes: to determine whether a course of action or project is a sound investment or decision, or to weigh a number of courses of action or projects against each other. It is a quantitative method usually expressed in financial terms.

D. Laurillard (2011) *Cost-benefit Modelling for Open Learning*, UNESCO, http://iite.unesco.org/pics/publications/en/files/3214686.pdf

CRITICAL INCIDENT TECHNIQUE

This is a qualitative research method that aims to collect data from users and organisations based on the observation and recounting of critical incidents. Individuals are asked to describe behaviours or incidents that are critical in that they contribute to the success or the failure of an endeavor—a crical incident can have a positive or negative connotation. The observations drawn from the incidents recounted are kept track of and can be used to solve practical problems and to develop a set of general principles.

Lorette K. Woolsey, (1986), The Critical Incident Technique: An Innovative Qualitative Method of Research, *Canadian Journal of Counselling*, 20(4), 242-254.

DPSIR: DRIVING FORCES, PRESSURES, STATES, IMPACTS AND RESPONSES

DPSIR is a causal framework for describing the interactions between society and the environment and stands for Driving forces, Pressures, States, Impacts and Responses. It is derived from the Pressure-State-Response model adopted by the Organisation for Economic Co-operation and Development (OECD). It is frequently a hidden aspect of IA but the method of thinking about causal relationships between differing parts of the interacting elements in the Impact Assessment is one broadly adopted within the Balanced Value Model. It is thus a useful framework for thinking about the IA and how the context drives the impact to be measured.

R. K. Turner, D. Hadley, T. Luisetti, V. W. Y. Lam and W. W. L. Cheung (2010),

An Introduction to Socio-Economic Assessment Within a Marine Strategy Framework, DEFRA, http://archive.defra.gov.uk/environment/marine/documents/legislation/msf-socioeconomic.pdf

Kristensen, Peter (2004), The DPSIR Framework, European Environment Agency.

ECONOMIC IMPACT ASSESSMENT

Economic impact assessment estimates the changes in employment, income, or levels of business activity that may result from a proposed project or intervention.

This has been used successfully in the cultural field, and in 2010 ALMA-UK commissioned a study to analyse economic impact methodologies for archives, libraries and museums and to utilise these to inform the development of economic impact toolkits with the potential to be rolled out across the sector.

ERS (2010) *Economic Impact Toolkits for Archives, Libraries and Museums. Final Report*, http://www.choicesforchange.info/wp-content/uploads/2011/02/18-11-ALMA-impact-Report-Final.pdf

ETHNOGRAPHIC RESEARCH

Ethnographic research is a qualitative research method that is both participatory and observational. Traditionally, it is carried out 'in the field'. That is, the researcher studies a community by being both a participant in the life of that community and an observer of it. Data collection is often done through participant observation, interviews, questionnaires, etc

In the past, ethnographic research was more often concerned with remote cultures, but its reach has extended to studying cultural practices closer to home. There is now a considerable body of work by ethnographers and anthropologists on the effects of digital media on culture and society (see Coleman 2010 for a summary of these). There is also a new subject area, digital ethnography, which is the study of online communities and human-technology interactions through the use of qualitative research methods.

Ethnographers study changes brought about by many kinds of interventions and developments in all societies and ethnographic methods can be helpful in assessing change in a community through the introduction of a digital resource.

E. Gabriella Coleman (2010), Ethnographic Approaches to Digital Media. *Annual Review of Anthropology,* 39, 487–505.

FOCUS GROUPS

Focus groups are a useful method for obtaining detailed information about a web resource from a group of stakeholders—or several groups of stakeholders; essentially a focus group is a conversation around a topic or a resource. There are different ways of mediating and moderating focus groups, and they general use a mixture of structured and unstructured methods of eliciting responses from participants. They may begin with a clear set of questions to be answered, but may deviate from these as participants ask questions, respond to points raised, relate anecdotes and experiences, and provoke debate. The aim is to gather qualitative data from these interactions, including data that can be hard to get at in conventional interviews or other data gathering methods.

Focus groups are a common research tool in the social sciences, and generate a great deal of discussion and debate. If an organization has created a resource, focus groups can be a useful way to find out how it is being used, how your target audience responds to it, what problems they encounter, how they find the interface, etc. The discussion is moderated, and usually focus groups comprise 6-12 participants, rarely more. Focus groups can be conducted online, but more usually they are face-to-face encounters.

Kathryn Eccles, What Are Focus Groups?
http://microsites.oii.ox.ac.uk/tidsr/kb/focus-groups

Anita Gibbs (1997), Focus Groups, Social Science Research Updates,
http://sru.soc.surrey.ac.uk/SRU19.html

Roger J. Rezabek (2000), Online Focus Groups: Electronic Discussions for Research, *Qualitative Social Research Forum*, 1, http://www.qualitative-research.net/index.php/fqs/article/view/1128/2509

INTERVIEWS

An interview is a conversation in which the interviewer questions the interviewee in order to gain information. Interviews can be formal or informal, structured or unstructured. They can be conducted one-to-one or in groups, face to face or by telephone or online. Interviews are a common research tool in the social sciences. They are time-intensive for the researcher, who may need to carry out a number of one-to-one interviews. They permit the gathering of a wide range of qualitative data, and they can provide information about people's motivations, feelings, attitudes, and what they remember. To be most useful, interviews should be well-structured in advance, but should allow the discussion to be relatively free to get the best out of the subject.

Kathryn Eccles, Interviews, http://microsites.oii.ox.ac.uk/tidsr/kb/30/what-are-interviews

Interviews, Social Research Methods.net http://www.socialresearchmethods.net/kb/intrview.php

LIFE SATISFACTION ASSESSMENT

According to the OECD Better Life Index, 'life satisfaction measures how people evaluate their life as a whole rather than their current feelings. It captures a reflective assessment of which life circumstances and conditions are important for subjective well-being'. This is difficult to measure and highly subjective, however governments are increasingly looking at life satisfaction alongside economic factors to monitor well-being and to drive policy. As the UK's Office for National Statistic states, 'It is increasingly understood that traditional economic measures are necessary, but not sufficient, to reflect a nation's overall progress or well-being'.

Organisation for Economic Co-operation and Development (OECD), Better Life Index,
http://www.oecdbetterlifeindex.org/topics/life-satisfaction/

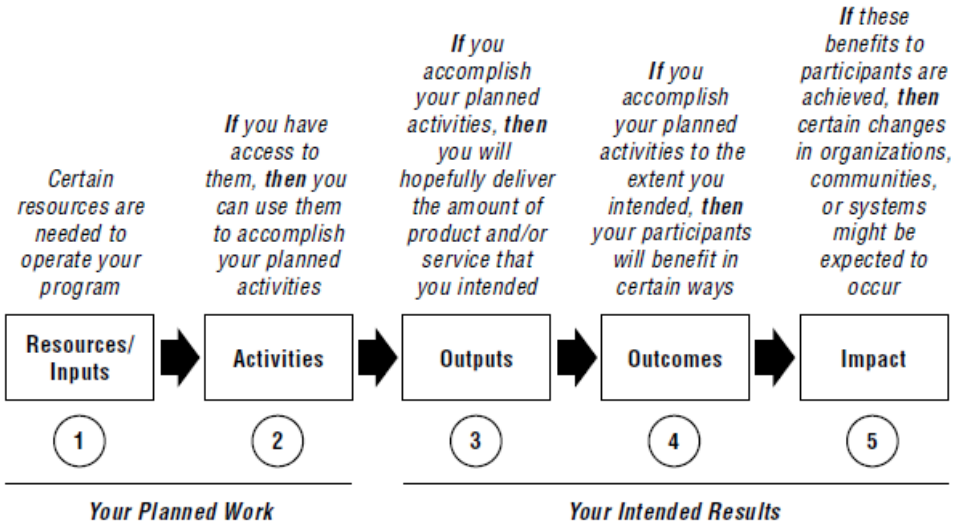
Office for National Statistics (ONS) (2012), First ONS Annual Experimental Subjective Well-being Results,
http://www.ons.gov.uk/ons/dcp171766_272294.pdf

LOGIC MODELS AS A MEANS OF EVALUATION

According to the AHRC definition, 'a programme logic model links outcomes with programme activities/processes and the theoretical assumptions/principles of the programme. The model facilitates thinking, planning, and communications about objectives and actual accomplishments.

A logic model is basically a systematic and visual way of presenting and sharing understanding of the relationships among the resources operating a programme, the planned activities, and the anticipated changes or result'.

The Kellogg Foundation express their logic models thus:



AHRC document at: http://www.ahrc.ac.uk/What-We-Do/Strengthen-research-impact/Pages/Self-evaluation.aspx

W. K. Kellogg Foundation (2001). W. K. Kellogg Foundation Logic Model Development Guide, http://www.wkkf.org/

LONGITUDINAL STUDY

Longitudinal studies are used to study change in the lives of individual people, and can also be used to track changes in organisations and institutions. Typically, the same (or a comparable) group of people is studied over time. Data is collected at the outset of the study, then periodically throughout the period of the study. Some
longitudinal studies can last several decades. The benefit is that researchers can look at changes over time, but the downside is that such studies require enormous amounts of time and are often quite expensive. There are three main types of longitudinal study:

- **Panel Study:** this involves sampling a cross-section of individuals.
- **Cohort Study:** Involves selecting a group based on a specific event such as birth, geographic location or historical experience.
- **Retrospective Study:** Involves looking to the past by looking at historical information such as medical records.

ESRC UK Longitudinal Studies Centre http://www.iser.essex.ac.uk/ulsc.

Kendra Cherry, What Is Longitudinal Research? http://psychology.about.com/od/lindex/g/longitudinal.htm

H. Goldstein (1968). Longitudinal Studies and The Measurement of Change, *The Statistician*, 18(2), http://www.jstor.org/pss/2986775

MULTI-CRITERIA ANALYSIS (MCA).

This can be used to assess a range of monetary and non-monetary benefits and impacts. It is often used as an alternative to stated preference and revealed preference techniques, which can be expansive and timely to apply. MCA is usually used by decision-makes when weighing up the possible impacts of a policy, and is used widely for decision-making in the built environment, and has also been proposed as a technique for integrating non-monetary social impacts and wellbeing evidence in valuation and appraisal. In short, the MCA framework permits the integration of monetary, quantitative and qualitative data.

To apply MCA, a performance matrix is constructed, with each row representing a policy option, and various objectives and criteria in the columns. A number of scoring methods are used: these can be numerical scales, colour coding, high/medium/low assessments. The decision-makers decide the criteria for the performance matrix, and they apply, but it is also recommended that the views of stakeholders be solicited in the process.

Simon Maxwell, Davina Henderson, Rachel McCloy, and Gemma Harper (2011), Social Impacts and Wellbeing: multi-criteria analysis techniques for integrating nonmonetary evidence in valuation and appraisal. A discussion of current approaches and opportunities, (London: DEFRA,).

PARTICIPATORY APPROACHES

Participatory approaches stress the importance of taking local people's perspectives into account and giving them a greater say in planning and of an the evaluation process. All stakeholders decide together how to measure results and what actions should follow once this information has been collected and analysed.

Participatory Methods Toolkit - A practitioner's manual
http://archive.unu.edu/hq/library/Collection/PDF_files/CRIS/PMT.pdf

PERSONAL MINI-MAPPING

Devised by Nicky Boyd, this is a visitor-centred approach used to establish the knowledge, attitudes and feelings children have about a topic e.g. before and/or after participation in an activity. Children are given a sheet of paper with a word or image in the centre and asked to note down or draw anything they can think of to do with this. The evaluator then clarifies these words/phrases/drawings and makes additional notes on the sheet using a different coloured pen. If there is a follow-up stage the children add to or change the same chart in a third colour of pen and the evaluator clarifies in a fourth colour. The two stage process can measure change thus demonstrating new learning. The analysis technique turns qualitative details into quantitative data using four measures.

Nicky Boyd, Museum Education and Evaluation Consultant ,
http://nickyboyd.users.btopenworld.com/nicky_boyd/index.htm

PROPORTIONAL MULTIPLIER ANALYSIS

Proportional Multiplier Analysis (PMA) combines a modified form of input-output analysis with Keynesian multiplier analysis. In PMA the economic impact of visitor spending consists of four stages:

- the initial spending by the visitors in the local economy (known as the multiplicand);
- the direct impacts: the incomes and jobs resulting from visitors' spending in destination businesses;

- the indirect impacts: the incomes and jobs visitor spending generates as a result of businesses buying goods and services locally;
- the induced impacts: the incomes and jobs resulting from people spending some, or all, of any income earned as a result of the visitor spending.

C. Wavell, G. Baxter, I.M. Johnson, and D.A. Williams (2002) Impact evaluation of museums, archives and libraries: a review of available evidence. Final report for Resource: the Council for Museums, Archives and Libraries. Aberdeen: The Robert Gordon University, http://www.rgu.ac.uk/4E339E80-595A-11E1-BF5B000D609CB064

PUBLIC VALUE ASSESSMENT

Public Value assessment is a performance measurement tool for quality assurance of public agencies. It has three aspects to it: delivering actual services; achieving social outcomes; maintaining trust and legitimacy of the agency. It might prove to be a useful method for cultural organizations. However, there is likely to be disagreement about what constitutes a public value: what is valuable to one person may not be valuable to another. A Public Value Scorecard (based on the Balanced Scorecard) has been devised to assess public value, alongside a Competing Values Framework, competing because, according to Colin Talbot, CVF asserts that human organisations are shaped by just two fundamental contradictions – the desire for flexibility and autonomy versus the need for control and stability; and the focus on internal concerns and needs versus responsiveness to the external environment. The competing values need to be assessed alongside each other to give a full picture of what might constitute Public Value.

Colin Talbot (2008), Measuring Public Value: A competing values approach, The Work Foundation, London, http://www.theworkfoundation.com/Reports/202/Measuring-Public-Value-A-competing-values-approach

QUALITY ADJUSTED LIFE YEARS (QALYS)

According to O'Brien (quoting NICE), the QALY is :

a specific mechanism to understand the cost-effectiveness of policy options, particularly medical interventions, has been developed within health economics: the Quality Adjusted Life Year (QALY). The QALY is based on a measurement of the outcome of interventions in terms of both the quality and length of life gained (NICE 2008). This measure allows differing and often disparate medical practices, techniques and technologies to be compared on the basis of their cost effectiveness. (O'Brien, 2010 p. 37.)

REFERRER ANALYSIS

Referrer analysis is a method for identifying third-party resources from which traffic to a web site originates. Referrals may indicate that a third party considers your web site to be relevant to their user community. Referrer analysis may prove useful for identifying use of a web site for academic research or in a taught course. Referrer analysis makes use of several webometric methods, including web log analysis and link analysis.

Referrer analysis and link analysis give a snapshot of who is linking to your site and from where, and using the results of this it is possible to determine strategies for increasing the number of sites linking to yours. This means that the audience for a site will grow exponentially as the more people who know about the site, the more will other sites link.

Christine Madsen, Referrer Analysis, http://microsites.oii.ox.ac.uk/tidsr/kb/referrer-analysis

Lorna Hughes, Gareth Knight, Paul Ell, Elaine Yeates, and Milena Dobreva, Stormont Parliamentary Papers Web Analysis Report (2011), http://www.jisc.ac.uk/whatwedo/programmes/digitisation/impactembedding/sphere.aspx

REVEALED PREFERENCE METHODS

These methods are based on an analysis of what people actually do in real world situations rather than them making choices or valuations in hypothetical situations. The two main categories of revealed preference methods are hedonic pricing and travel cost. Hedonic pricing is rarely used in the cultural sector, being largely confined to valuing the property market, and it assesses the relationship between goods and services and market prices. Travel cost estimates the amount of time people are prepared to travel to consume goods or services. (O'Brien, 2010 p. 30.)

SMART CRITERIA

SMART is an acronym for Specific, Measurable, Attainable, Relevant and Timebound much used in project planning and performance management. When setting goals or establishing criteria, they need to be Specific, that is, clear and well-defined; Measurable, so that you have some standard to judge the success or failure of a project or intervention; Attainable, can what is proposed actually be done with the resources allocated? Timebound, has the right amount of time been allocated to the activity.

Duncan Haughey, SMART Goals, ProjectSmart.co.uk, http://www.projectsmart.co.uk/smart-goals.html

SOCIAL AUDITING

Social auditing is a method of evaluating impact by enabling an organisation to assess and demonstrate its social, economic, and environmental benefits and limitations. It is a way of measuring the extent to which an organisation lives up to the shared values and objectives it has committed itself to.

Social auditing provides an assessment of the impact of an organisation's non-financial objectives through systematically and regularly monitoring its performance and the views of its stakeholders.

G. Boyd(1998). *Social Auditing: A Method of Determining Impact*. Alana Albee Consultants and Associates, www.caledonia.org.uk/socialland/social.htm.

SOCIAL MEDIA STRATEGY

Most cultural organisations engage with their users through the use of social media (FaceBook, Twitter etc). This engagement can offer useful opportunities to collect detailed data about users and usage. The Culture24 report offers advice about how to use social media and how to evaluate data and statistics derived from social media and they have produced a toolkit to help institutions decide what to measure and how.

Culture24. (2011). *Let's Get Real: Report from the Culture24 Action Research Project*. Retrieved from http://weareculture24.org.uk/lets-get-real-resources/

SOCIAL RETURN ON INVESTMENT (SROI)

The New Economics Foundation defines SROI as: *an analytic tool for measuring and accounting for a much broader concept of value. It incorporates social, environmental and economic costs and benefits into decision making, providing a fuller picture of how value is created or destroyed.*

SROI provides a means of giving a monetary figure to social and cultural value deriving from an investment, for example, nef research on the value created by a training programme for ex-offenders revealed that for every £1 invested, £10.50 of social value was created.

The SROI Network states that SROI is *a framework based on social generally accepted accounting principles (SGAAP) that can be used to help manage and understand the social, economic and environmental outcomes created by your activity or organisation.*

SROI is based on seven principles:

1. **Involve stakeholders**
   Understand the way in which the organisation creates change through a dialogue with stakeholders

2. **Understand what changes**
   Acknowledge and articulate all the values, objectives and stakeholders of the organisation before agreeing which aspects of the organisation are to be included in the scope; and determine what must be included in the account in order that stakeholders can make reasonable decisions

3. **Value the things that matter**
   Use financial proxies for indicators in order to include the values of those excluded from markets in same terms as used in markets

4. **Only include what is material**
   Articulate clearly how activities create change and evaluate this through the evidence gathered

5. **Do not over-claim**
   Make comparisons of performance and impact using appropriate benchmarks, targets and external standards.

6. **Be transparent**
   Demonstrate the basis on which the findings may be considered accurate and honest; and showing that they will be reported to and discussed with stakeholders

7. **Verify the result**
   Ensure appropriate independent verification of the account

The New Economics Foundation, www.neweconomics.org/projects/social-return-investment
The SROI Network web and community resource, www.thesroinetwork.org/

STATED PREFERENCE METHODS

Stated Preference methods are well established within environmental and transport economics and are used by a number of UK government departments. They offer monetised valuations of cultural activities and institutions for cost-benefit analysis

Contingent valuation and choice modeling (see below) are both Stated Preference methods.

SUBJECTIVE WELLBEING

Subjective wellbeing methods assume a relationship between wellbeing and income. According to O'Brien, Valuations are derived by understanding the impact of an event or activity on wellbeing and then understanding the amount of income that would be required to achieve the same change in wellbeing, known as income compensation.

An example might be the effect of doing sport or taking part in cultural events which increase an individual's sense of wellbeing. An estimate is made of the level of income that would be required to reach the same level of wellbeing. This is known as income compensation. However, it is very difficult to measure wellbeing and also to estimate the income compensation values. (O'Brien, 2010 p. 34.)

SWOT ANALYSIS

SWOT is an acronym for Strengths, Weaknesses, Opportunities and Threats. A SWOT analysis is a useful planning tool used near the beginning of a project or process. It is relatively simple to carry out, but can offer some powerful insights into a new venture. Strengths are the positive attributes that the organization possesses and has some control over (staff, equipment, resources, etc); Weaknesses are factors that may be outside the control of the organization or may be a lack of resources within the organization. It is vitally important to analyse weaknesses at the start of a venture—otherwise there can be some nasty surprises later on; Opportunities tend to be external to the organization but represent factors that need to be taken account of: a potential new audience for a resource or a possible source of funding are potential opportunities; Threats are external factors outside your control that may cause impediments to the success of the venture.

Tim Berry, How to Perform SWOT Analysis, Bplans, http://articles.bplans.com/business/how-to-perform-swot-analysis/116.

THEORY OF CHANGE

Theory of Change, as an outcomes-based, participatory method has evolved from its early days into a rigorous tool for planning, evaluation, and organizational capacity-building. Theory of Change defines all building blocks required to bring about a given long-term goal. This set of connected building blocks– interchangeably referred to as outcomes, results, accomplishments, or preconditions is depicted on a map known as a pathway of change/change framework, which is a graphic representation of the change process.

Theory of Change Web resource and community, https://www.theoryofchange.org/

TRIPLE BOTTOM LINE

The triple bottom line (abbreviated as TBL or 3BL, and also known as *people, planet, profit*) captures an expanded spectrum of values and criteria for measuring organizational (and societal) success: economic, ecological, and social. It has been used extensively by the United Nations as a standard for public sector full cost accounting and measures of human capital

John Elkington (1999), Cannibals with Forks: The Triple Bottom Line of 21st Century Business, Capstone; New Ed edition (1 Sep 1999), 1841120847

TRIPLE TASK METHOD

The Triple Task is a new methodology developed by Simon Bell and Stephen Morse for systemic action research. Bell and Morse describe it as: arising from the authors previous work with soft systems approaches, the Imagine method for sustainable development assessment and action research in a variety of global locations. The Triple Task is described as a unique form of participatory action research and stakeholder analysis in the sense that not only does it attempt to arrive at answers to research questions but also tries to understand what factors may have been at play in arriving at those answers.

The Triple Task Method is not to be mistaken for the similarly named "triple task technique" for studying writing processes.

S. Bell and S. Morse, (2012) Sustainability Indicators: Measuring the Immeasurable? 2nd Edition, Earthscan, 2012.

USER FEEDBACK

This is something of a nebulous area as there are a number of ways in which feedback can be garnered from users, and any user feedback must be treated with caution as generally users only offer feedback about what doesn't work or what proves problematic. And even then, if they are not happy with the site they may just leave and go elsewhere without actually leaving any feedback. The ways of eliciting feedback can include just setting up an email address and inviting the users to 'contact us'; setting up a feedback form; setting up a blog; setting up a discussion list; etc

Being in touch with the user community of course can only be of benefit, but it is also important to remember that they will communicate more actively the move you communicate with them. So if you set up a blog or a list serve, post to it frequently yourself. If you build an active user community, you will more easily be able to find out how your resource is being used by your target audience (and by audiences you didn't expect) and will be able to recruit focus group participants and disseminate questionnaires and surveys.

Kathryn Eccles, User Feedback, http://microsites.oii.ox.ac.uk/tidsr/kb/37/how-do-i-collect-user-feedback

WEBSITE ANALYTICS

The official Digital Analytics Association definition of web analytics states that this is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage. In other words, analytics are statistics about the traffic and visitors your website attract and they are widely used to assess the impact of a website. There are two kinds of website analytics: off-site, which can be applied to website by external agencies—sometimes without the knowledge of the creator, in which case this can be a breach of security or privacy, and on-site, which assess what a visitor does once they are on your website Many sorts of data can be gleaned from analytics, and there are many tools, paid-for and free, that can analyse and display statistics. The analytic data can then be used for many purposes: audience research, assessment of return on investment, assessment of whether the site is working properly, etc. Information can be collected by analysing web server log files, by page tagging, by using geolocation software to track where users originate, by click analysis. These methods can give information on:

- the number of visits
- the number of page views
- how long users spend on a site
- most viewed pages
- other sites referring traffic to the site
- where users originate
- number of clicks

A common method of analyzing web site traffic is using log file analysis. Log files are text files maintained by web servers to record downloads of web pages and other files. When a web browse requests a page from a web server, the server can add a new line to the end of the log file with information such as the URL of the requested page, the IP address sending the request, and the date and time of the request.

Digital Analytics Association, http://www.digitalanalyticsassociation.org

Open Web Analytics, http://www.openwebanalytics.com/

Toolkit for the Impact of Digitised Scholarly Resources (TIDSR), Oxford Internet Institute, http://microsites.oii.ox.ac.uk/tidsr/kb/42/what-are-analytics

Peterson, Eric, T. (2004), *Web Analytics Demystified* http://www.webanalyticsdemystified.com/content/books.asp

WEBOMETRICS

Webometrics is defined by Thelwall as being 'concerned with measuring aspects of the web: web sites, web pages, parts of web pages, words in web pages, hyperlinks, web search engine results.' It is at the same time '(a) a set of quantitative techniques for tracking and evaluating the impact of web sites and online ideas and (b) the information science research field that developed these ideas.'

Webometrics is an offshoot of bibliometrics, a complex and long-standing methodology for analysing primarily scientific and technological literature. Citation analysis and content analysis are commonly used bibliometric methods.. Bibliometric are widely used in the field of library and information science, but also have considerable applications in other areas. In fact, many research fields use bibliometric methods to explore the impact of their field, the impact of a set of researchers, or the impact of a particular paper. Bibliometric methods are also used to trace connections among journal citations.

Given that bibliometrics is complex, webometrics is equally complex and comprises many interlinked quantitative methods of analysis including link analysis, web citation analysis, search engine evaluation, web description (average web page size; tags used etc). Bibliometric/webometric analyses are being employed in the UK to assess the impact of scholarly research to inform the research rankings process being carried out under the Research Assessment Framework.

Michael Thelwall, , Introduction to Webometrics: Quantitative Web Research for the Social Sciences, *Synthesis Lectures on Information Concepts, Retrieval, and Services* (2009), 1(1), 1-116.

Toolkit for the Impact of Digitised Scholarly Resources (TIDSR), Oxford Internet Institute, http://microsites.oii.ox.ac.uk/tidsr/kb/webometrics

WEB QUESTIONNAIRES AND SURVEYS

Questionnaires are instruments that have long been used by social scientists, market researchers and others to gather information from respondents. They usually consist of a series of questions and are often designed for statistical analysis of the responses. They are widely-used as they are inexpensive, but they are so standardized as to be often frustrating to users, and to offer limited information to researchers. Surveys, used in quantitative research, are usually performed by researchers by face-to-face or telephone interviews and so they allow the gathering of more precise information than questionnaires. However, they are more expensive to administer than questionnaires.

Surveys and questionnaires are widely used to analyse website usage: where web analytics offers methods of measuring usage of web resources that are automatic and comprehensive in that data can be gathered about every user and every use, web surveys and questionnaires allow the collection of information that cannot be gathered automatically, but the problem here is that questions have to be asked directly of users and the users have to answer them. Given the number of surveys users are asked to respond to, users often suffer from survey fatigue and do not respond to requests to fill in questionnaires. However, this problem is not unique to online surveys, and statistical techniques have been developed to overcome it. Another problem with online surveys is that they have often been

designed by people with no real experience in the area, and are therefore poorly designed and analysed. Users who have been exposed to amateurish surveys may be wary of surveys in general.

There are many different kinds of surveys that can be done on the web (Couper lists 8 major types) and which can to choose depends on the resource being evaluated, the anticipated audience, and the purpose of the survey. Many of these types of surveys can be used for impact evaluation. Instruments used for data collection must elicit all the information required to answer the questions set out by the impact evaluation. The title of a recent presentation by Adam Ross gives a salutary warning: 'Survey Data Collection for Impact Evaluation: It's Not as Easy as We Might Think!'

It is strongly recommended that for anything but the simplest set of questions, an expert in questionnaire design and analysis be consulted. Survey design and analysis is a skilled professional task and if surveys are not well-conducted, time and money can be wasted in the pursuit of information that proves to be useless for the intended purpose.

M. Couper, (2000), Web surveys: a review of issues and approaches, *Public Opinion Quarterly* 64, 464-494, http://poq.oxfordjournals.org/content/vol64/issue4/index.dtl

Adam Ross (2010), Survey Data Collection for Impact Evaluation. It's Not as Easy as We Might Think! Seoul, Korea. December 2010.

Toolkit for the Impact of Digitised Scholarly Resources (TIDSR), Oxford Internet Institute, http://microsites.oii.ox.ac.uk/tidsr/kb/26/surveys-evidence-impact

Paul Wassenich (2007), Data for Impact Evaluation, World Bank Working Paper (42380, October 2007), http://documents.worldbank.org/curated/en/2007/10/8987956/data-impact-evaluation

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Beagrie, N., Chruszcz, J., & Lavoie, B. (2008). *Keeping Research Data Safe: a Cost Model and Guidance for UK Universities*. JISC. Available at http://www.jisc.ac.uk/publications/reports/2008/keepingresearchdatasafe.aspx

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